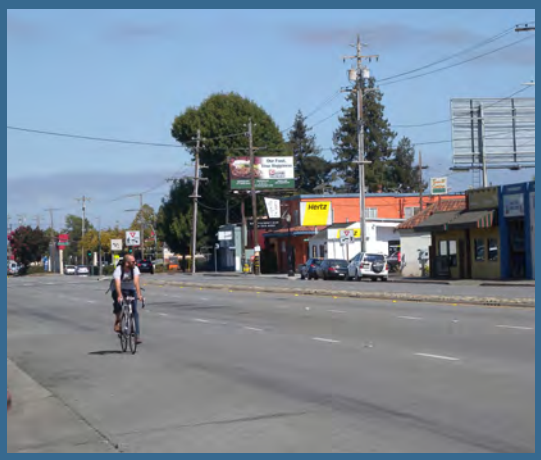
APPENDIX D: EL CAMINO REAL CORRIDOR PLAN EXISTING CONDITIONS MEMORANDUM #3: TRANSPORTATION (2016)

Redwood City El Camino Real Corridor Plan



Existing Conditions Memorandum #3:
Transportation

November 2016

Prepared by

W-Trans

Redwood City | California Founded 1867

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1 Introduction

1.1 Document Context

One of the goals of the El Camino Real Corridor Plan is to evaluate potential transportation and safety improvements to El Camino Real in Redwood City. The purpose of the study is to ultimately provide alternatives to modify the existing roadway cross-section that allow and balance the safe and effective movement of all modes of transportation, including pedestrians, bicycles, transit, and vehicles, in a way that enhances and complements the proposed changes to land uses along the El Camino Real corridor.

This Existing Conditions Report is the first in a series of documents that will be produced as part of this effort.

1.2 Existing Conditions Summary

This Existing Conditions Report includes a summary of data collected along the corridor, an analysis of existing corridor operations, and documentation of existing facilities that serve all modes of travel. Following is a summary of the issues that are detailed in this report.

- Study Area – El Camino Real is the main north-south arterial in Redwood City. The corridor within the City limits is typically a four-lane divided arterial with traffic signals, sidewalks, pedestrian crosswalk and curb ramps, as well as assorted transit service including SamTrans buses and Caltrain.
- Pedestrian Facilities – Within Redwood City, continuous sidewalks are currently provided along both sides of El Camino Real; however, the width and condition of the sidewalk varies along the corridor. Marked pedestrian crosswalks, along with pedestrian crossing signal equipment, are provided at signalized intersections; however, at some intersections, crossings are prohibited on one leg of the intersection. There are three uncontrolled marked crossings on El Camino Real within the study area corridor. Generally, pedestrian facilities along the corridor are connected, though narrow sidewalks, long crossing distances, the number and width of driveways, and vehicle speeds present barriers for pedestrians. Enhanced connections could improve safety, comfort, and accessibility between major activity centers.
- Bicycle Mode of Travel – Existing bicycle facilities within the study area include bike lanes and bike routes on streets intersecting El Camino Real and one block of Class III bike route designation on El Camino Real between Whipple Avenue and Brewster Avenue. Bicycle facilities along El Camino Real should be comfortable and safe, and would provide for a

regional connection and continuity to and from jurisdictions to the south, while proper facility connections should be addressed to the north.

- Public Transit – Transit service in the study area is provided by SamTrans for local and regional bus service and Caltrain for regional rail service. Bus service and Caltrain run frequently during the weekday a.m. and p.m. peak hours. Buses use vehicle travel lanes and merge in and out of traffic along El Camino Real. Pedestrian access to buses is provided on sidewalk facilities and bicycles are permitted on bus racks. The Redwood City Transit Center is accessed via El Camino Real/James Avenue, with bus turning movements potentially conflicting with the corridor's highest pedestrian and bicycle volumes.
- Vehicular Traffic Operations – The three-mile corridor includes 37 intersections, 13 signalized and 24 unsignalized. This study evaluated 10 of those intersections, which were determined by City staff to be most critical. Southbound traffic is highest during the a.m. peak period, while northbound traffic is highest during the p.m. peak period. Results of the Level of Service (LOS) calculations indicate that all study intersections are operating at LOS D or better overall, and that the eastbound and westbound approaches at El Camino Real/Laurel Street-Hazel Street operate at LOS F during both peak hours. Excess quantity and width of driveways along the corridor present conflicts between vehicles and non-motorized modes.
- Queuing – Excessive vehicular queuing along El Camino Real is generally concentrated near approaches to SR 84 (Woodside Road). Vehicle queuing spillbacks generally occur in the southbound direction during the a.m. peak and in northbound direction during the p.m. peak. Generally, vehicular queuing can be theoretically reduced by adding more vehicle travel lanes. This approach, however, may take space away from on-street parking areas, increase pedestrian crossing distances and provide less opportunity for bicycle lanes. Also, added capacity may not necessarily reduce queuing in reality as the added capacity can sometimes attract additional traffic to the corridor.
- Parking – Parking along the El Camino Real corridor consists of on-street parking, off-street public parking in the Downtown area, private parking lots, and Caltrain commuter lots. The available on-street parking supply along El Camino Real and on cross-streets of the corridor is underutilized, at approximately 70 percent along El Camino Real and 80 percent along the corridor's cross-streets. In areas where parking is underutilized, consideration should be given to repurposing the right-of-way for other uses (such as wider sidewalks or bike facilities) so long as area-wide parking demand is satisfied, and overall parking utilization does not exceed 85 percent.
- Collisions and Safety – A review of the City's records for collisions along El Camino Real showed that the calculated intersection collision rates were higher than the statewide average for similar facilities at intersections many of the study intersections, particularly those located near the Downtown and high school. Rear-end collisions along the corridor due to speeding could be reduced.

2 Regulatory Setting

2.1 Redwood City General Plan

The *Redwood City General Plan*, which was adopted in 2010, provides the framework for transportation planning within the city. The General Plan established goals that are concerned with the safe and efficient movement of people and goods in and around the city, while promoting alternative modes of transportation. Transportation-related goals and policies included in the Circulation Element of the Redwood City General Plan that are relevant to this study include the following:

Goal BE-26: Improve walking, bicycling, and electric bicycle/scooter facilities to be more convenient, comfortable, and safe, and therefore more common transportation modes in Redwood City.

- Policy BE-26.4: Consider street modifications to improve bicyclist, electric bicycle/scooter, and pedestrian safety through such measures as the use of neighborhood traffic management strategies, the development of complete streets concepts, and implementation of Bicycle Boulevard.
- Policy BE-26.9: Use portions of railroad and utility rights-of-way for use of exclusive or shared bicycle, electric bicycle/scooter, and pedestrian facilities, as feasible.

Goal BE-27: Create conditions to improve utilization of existing public transportation services to increase ridership.

- Policy BE-27.2: Pursue development of streetcar lines in areas for targeted development intensification and to connect major destinations.
- Policy BE-27.3: Provide for roadways designated as transit routes to accommodate transit vehicle circulation and adequate access to and from transit stops.
- Policy BE-27.4: Require that new development and projects improve access to and accommodations for public transit.
- Policy BE-27.6: Site transit stop amenities to facilitate access to and from transit stops and transfers between buses. Make transit an attractive alternative to driving.
- Policy BE-27.10: Maintain and improve access and mobility for the mobility impaired population groups such as youth, the disabled, and seniors.

Goal BE-28: Provide maximum opportunities for upgrading passenger rail service for faster and more frequent trains, while making this improved service a positive asset to Redwood City that is attractive, accessible, and safe.

- Policy BE-28.2: Support attractive and pedestrian-friendly railroad track grade-separated crossings and other appropriate measures to mitigate potential noise, air pollution, safety, and traffic impacts of increased Caltrain service and new high-speed rail service.

Goal BE-29: Maintain the city's network to promote safe and efficient movement of people.

- Policy BE-29.1: Develop and maintain a roadway network that categorizes streets according to function and type, considering the surrounding land use context.
- Policy BE-29.2: Pursue programs that reduce vehicle speeds and cut-through traffic on local streets.
- Policy BE-29.4: Encourage implementation of Intelligent Transportation Systems (ITS) strategies to maximize the efficiency of the existing transportation systems.
- Policy BE-29.5: Support re-evaluation of the City's Level of Service (LOS) policies for motor vehicle circulation to ensure efficient traffic flow and balance multi-modal mobility goals.
- Policy BE-29.6: Develop a new Level of Service (LOS) policy for Downtown that includes the following components:
- Emphasis on pedestrian and bicycle access and circulation
- Maintenance of appropriate emergency vehicle access and response time
- Support for reduced vehicle miles traveled
- Considers, but does not deem, auto congestion Downtown to be an impact

Goal BE-31: Encourage developments and implementation of strategies that minimize vehicle trips and vehicle miles traveled.

- Policy BE-31.1: Explore alternative techniques and requirements as they pertain to various transportation modes including parking, land use, and traffic mitigation that would encourage the use of alternative transportation modes.
- Policy BE-31.3: Encourage developments that minimize vehicle trips and vehicle miles traveled.
- Policy BE-31.4: Support implementation of a citywide or area wide TDM program.
- Policy BE-31.5: Ensure that TDM programs initiated by private parties reduce projected traffic impacts.
- Policy BE-31.7: Balance business viability and land resources by maintaining an adequate supply of parking to serve demand while avoiding excessive parking supply that discourages non-automobile travel modes usage.

- Policy BE-31.9: Consider reducing parking requirements for mixed-use developments and for developments providing shared parking or a comprehensive TDM program, or developments located near major transit hubs.

2.2 Redwood City Complete Streets Advisory Committee

In January 2015, City Council approved the formation of a Complete Streets Advisory Committee. The Committee's pilot mission is to increase access and travel for the Redwood City community utilizing Complete Streets principles and practices. Their focus includes:

1. Help to create multi-modal transportation options that enable safe, attractive, comfortable, and independent access and travel for people of all ages and abilities.
2. Provide staff with recommendations for pragmatic and specific user solutions.
3. Serve as a conduit for community input and provide recommendations to staff.

2.3 San Mateo County Comprehensive Bicycle and Pedestrian Plan

The City/County Association of Governments of San Mateo County (C/CAG), with support from the San Mateo County Transportation Authority (SMCTA), developed the 2011 San Mateo County Comprehensive Bicycle and Pedestrian Plan (CBPP) to address the planning, design, funding, and implementation of bicycle and pedestrian projects of countywide significance.

The following are the relevant goals and policies:

Goal 2: More People Riding and Walking for Transportation and Recreation

- Policy 2.6: Serve as a resource to county employers on promotional information and resources related to bicycling and walking.

Goal 4: Complete Streets and Routine Accommodation of Bicyclists and Pedestrians

- Policy 4.1: Comply with the complete streets policy requirements of Caltrans and the Metropolitan Transportation Commission concerning safe and convenient access for bicyclists and pedestrians, and assist local implementing agencies in meeting their responsibilities under the policy.
- Policy 4.5: Encourage local agencies to adopt policies, guidelines, standards and regulations that result in truly bicycle-friendly and pedestrian-friendly land use developments, and provide them technical assistance and support in this area.
- Policy 4.6: Discourage local agencies from removing, degrading or blocking access to bicycle and pedestrian facilities without providing a safe and convenient alternative.

2.4 Caltrans Implementation of Deputy Directive 64-R2: Complete Streets – Integrating the Transportation System

El Camino Real is designated as State Route 82, so is operated by the California Department of Transportation (Caltrans) in coordination with Redwood City. Caltrans has adopted a Deputy Directive relevant to complete streets, noting that they provide safe mobility for all users, including motorists, bicyclists, pedestrians and transit riders, and contribute to the Department's mission/vision. The goals of implementing the complete street policy are to provide more options for people to go from one place to another, reduce traffic congestion and greenhouse gas emissions, promote walkable communities, and reduce barriers for persons with disabilities.

While there are no specific goals and policies of this Directive, local agencies are working in cooperation with Caltrans to further the intent of the Deputy Directive. Deputy Directive 64-Revision #2: Complete Streets: Integrating the Transportation System (DD-64-R2) was signed on October 17, 2014. Under this Directive Caltrans is directed to provide for the needs of travelers of all ages and abilities in all planning, programming, design, construction, operations, and maintenance activities and products on the State Highway System (SHS). Caltrans views all transportation improvements (new and retrofit) as opportunities to improve safety, access, and mobility for all travelers and recognizes bicycle, pedestrian, and transit modes as integral elements of the transportation system. Bicycle, pedestrian, and transit travel is facilitated by creating "complete streets" beginning early in system planning and continuing through project delivery, maintenance, and operations.

Providing complete streets increases travel options which, in turn, reduces congestion, increases system efficiency, and enables environmentally sustainable alternatives to single driver automotive trips. Implementing complete streets and other multi-modal concepts supports the California Complete Streets Act of 2008 (AB 1358), as well as the California Global Warming Solutions Act of 2006 (AB 32) and Senate Bill 375, which outline the State's goals of reducing greenhouse gas emissions. With AB 1358 and DD-64-R2, both Caltrans and local agencies are working to complete and address common goals.

It should be noted that Redwood City is working to implement the Directive via complete streets policies contained within the General Plan as well as the City's formation of the Complete Streets Advisory Committee.

2.5 Grand Boulevard Initiative

The Grand Boulevard Initiative is a regional collaboration of public, private, and nonprofit organizations in San Mateo and Santa Clara counties with the goal of revitalizing the El Camino Real corridor. The El Camino Real Corridor Plan and Downtown Precise Plan as well as this El Camino Real study are part of Redwood City's efforts towards implementing the overall goals of the Grand Boulevard Initiative.

3 Corridor Characteristics

The study area consists of El Camino Real within the Redwood City limits, from Finger Avenue in the north to Renato Court (on the west side of El Camino Real) and Northumberland Avenue (on the east side of El Camino Real), as shown in Figure 1. El Camino Real, also designated as State Route (SR) 82, is a primary arterial roadway and commercial corridor on the San Francisco Peninsula. As a regional route, El Camino Real begins in Santa Clara County in the south, and continues through San Mateo County, into Daly City to the north, where it continues as Mission Street into San Francisco. In much of Santa Clara County and all of San Mateo County, El Camino Real is under the jurisdiction of the California Department of Transportation (Caltrans).

3.1 Corridor Overview

Within the city limits of Redwood City, El Camino Real has a posted speed limit of 35 mph and generally has two through travel lanes in the northbound and southbound directions, with turn lanes provided at the intersections. At the northerly end of the corridor, the roadway transitions from three to two southbound lanes between Edgewood Road and Claremont Avenue. The roadway also has three lanes between the southern terminus of the corridor and Main Street-Redwood Avenue. A raised median extends the entire length, varying between three feet at intersections to provide width for turn lanes to 10 feet where landscaping is provided. The curb-to-curb width of El Camino Real is approximately 84 feet for the entire length of the corridor, except north of Edgewood Road, where the roadway is approximately 76 feet wide. Continuous sidewalks are provided along the entire length of the corridor and parking is generally allowed, though at times is either restricted or prohibited. Details regarding pedestrian, bicycle, and vehicle facilities and parking are provided later in this report.

3.2 Study Intersections

The intersections listed below were evaluated in more detail. These intersections, which are shown on Figure 1, include:

1. El Camino Real/Whipple Avenue
2. El Camino Real/Brewster Avenue
3. El Camino Real/James Avenue
4. El Camino Real/Jefferson Avenue
5. El Camino Real/Maple Street
6. El Camino Real/Roosevelt Avenue
7. El Camino Real/Oak Avenue
8. El Camino Real/Redwood Avenue-Main Street
9. El Camino Real/Hazel Avenue-Laurel Street
10. El Camino Real/Oakwood Drive-Dumbarton Avenue

3.3 Other Corridor Intersections

El Camino Real also intersects the following streets, which are stop-controlled on their approach to El Camino Real:

- Finger Avenue
- Edgewood Road
- Claremont Avenue
- Winklebleck Street
- Harrison Avenue
- Wilson Street
- Jackson Avenue
- Diller Street
- Madison Avenue
- Vera Avenue
- Beech Street
- Lincoln Avenue
- Cedar Street
- Pine Street
- Main Street
- Manzanita Street
- Willow Street
- Hemlock Avenue
- Northumberland Avenue
- Carlos Avenue
- Renato Court

El Camino Real intersects the following streets, which are yield-controlled on their approach to El Camino Real:

- Redwood Avenue
- Laurel Street
- Hazel Avenue

On their approach to El Camino Real, the following streets are limited to right-turn in/right-turn out movements by a raised median on El Camino Real.

- Claremont Avenue
- Winklebleck Street
- Harrison Avenue
- Wilson Street
- Jackson Avenue
- Diller Street
- Vera Avenue
- Cedar Street
- Pine Street
- Main Street
- Rosewood Avenue
- Manzanita Street
- Laurel Street
- Hazel Avenue
- Willow Street
- Hemlock Avenue
- Carlos Avenue
- Renato Court

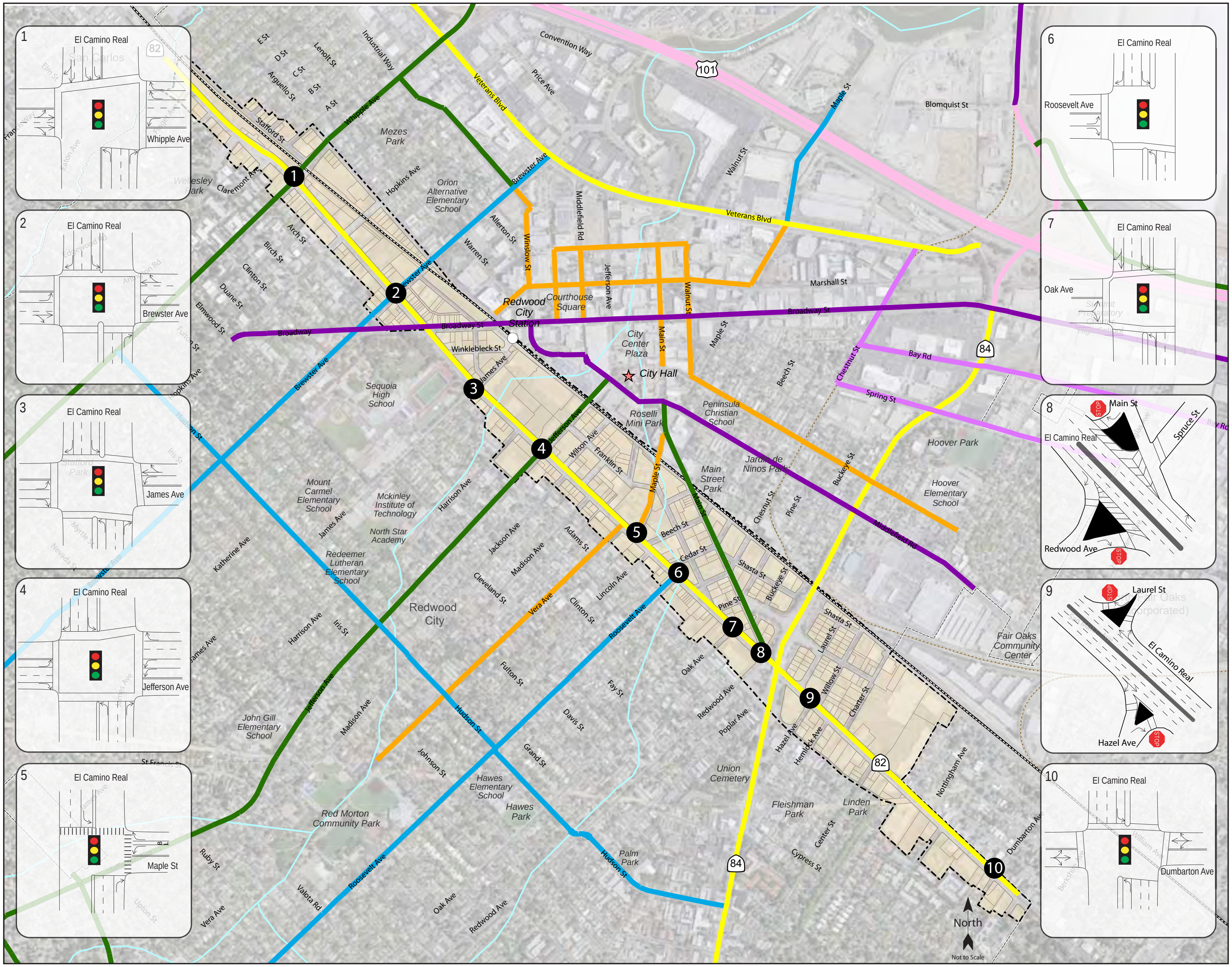

Figure 1

EL CAMINO REAL CORRIDOR PLAN

Study Area with Lane Configurations & Street Typlogy

- Study Intersection

CLASS

- Local Street
- Transit Street
- Bicycle Boulevard
- Pedestrian Street
- Connector Street
- Industrial Street
- Boulevard
- Auto Dominant Highway
- Caltrain Station
- Caltrain
- US Highway
- State Highway
- Ramps
- Railroads
- Study Area Parcels
- El Camino Real Corridor Planning Boundary
- Downtown Precise Plan Boundary
- Redwood City Limits

0 750 1,500 3,000
Feet

Data Source: City of Redwood City GIS, 2016; San Mateo County Geographic Information Systems, 2016; ESRI, 2016; Dyett & Bhatia, 2

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It should be noted that streets in Redwood City generally do not follow a true north-south or east-west alignment. For the purpose of this analysis, El Camino Real was considered to have a north-south alignment. Therefore, the alignment designation of all other streets was established based on the street's relative position to El Camino Real.

3.4 Cross Streets

Following are descriptions of all cross streets (from north to south) in the project area and street typology is shown in Figure 1.

Finger Avenue is a two lane street that intersects El Camino Real from the west and provides access to residential neighborhoods, with parking allowed on both sides of the street and a posted speed limit of 25 mph. Finger Avenue is stop controlled at its intersection with El Camino Real.

Avondale Avenue is a two-lane street that intersects El Camino Real from the west. Parking is allowed on both sides of the street. Avondale Avenue is stop controlled at its intersection with El Camino Real.

Edgewood Road is a three-lane street with two travel lanes and a center turn lane that intersects El Camino Real from the west side. It provides access to residential neighborhoods and Wellesley Crescent Park and has a posted speed limit of 25 mph. The eastbound approach of El Camino Real/Edgewood Road is stop controlled.

Claremont Avenue is a two-lane local street that intersects El Camino Real from the west side. It provides access to residential neighborhoods and Wellesley Crescent Park. Parking is allowed on both sides of the street. The intersection is stop controlled and turns are restricted to right turns only onto El Camino Real.

Whipple Avenue has four lanes east of El Camino Real and goes down to two lanes west of El Camino Real. It provides access to residential neighborhoods to the west of El Camino Real. The signalized intersection also provides access to residential neighborhoods, shopping centers, and US 101 to the east of El Camino Real.

Hopkins Avenue is a three-lane street with two travel lanes and a center turn lane that intersects El Camino Real from the west side at a signalized intersection. It provides access to residential neighborhoods. The east leg of the signalized intersection is a driveway.

Brewster Avenue intersects El Camino Real from the east and west sides and has four lanes. To the west, the street provides access to residential neighborhoods and Sequoia High School and to the east, access is provided to commercial land uses. The intersection at El Camino Real is signalized, and the posted speed limit on the street is 25 mph.

Broadway intersects El Camino Real from the east and west side and has two lanes. To the west, Broadway provides access to neighborhoods and Sequoia High School; to the east, it provides access to downtown restaurants and businesses. Parking is allowed on both sides to the east and west of El Camino Real. The intersection of El Camino Real/Broadway is signalized.

Winklebleck Street is a two lane street that intersects El Camino Real from the east side. It provides access to commercial and retail land uses and parking is allowed on both sides of the street. The westbound approach at El Camino Real is stop controlled and turning movements are restricted to right-in/right-out movements.

James Avenue is a two lane street that intersects El Camino Real from the east and west side. To the west, the street provides access to residential neighborhoods; to the east, the street provides access to the Redwood City Caltrain station. The El Camino Real/James Avenue intersection is signalized.

Harrison Avenue is a two lane street that intersects El Camino Real from the west side, with access to residential neighborhoods. The eastbound approach to the intersection is stop controlled and turning movements are restricted to right-in/right-out only. Parking is allowed on both sides of the street.

Jefferson Avenue is a four lane street that intersects El Camino Real from the east and west, providing access to residential neighborhoods to the west and shopping centers and commercial land uses to the east. Its intersection with El Camino Real is signalized.

Wilson Street is a two lane street that intersects El Camino Real from the east side, with stop-control on the westbound approach at the intersection with El Camino Real. It provides access to residential and commercial buildings. Vehicle turns are restricted to right-in/right-out only. Parking is allowed on the north side of the street.

Jackson Avenue is a two lane street that intersects El Camino Real from the west side, with the eastbound approach stop-controlled at the intersection with El Camino Real. It provides access to residential neighborhoods. Vehicle turns are restricted to right-in/right-out only due to the median on El Camino Real. Parking is allowed on both sides of the street.

Diller Street is a two lane street that intersects El Camino Real from the east side. It provides access to residential neighborhoods and commercial land uses. The intersection approach is stop controlled and vehicles are only allowed to turn right due to a median on El Camino Real. Parking is allowed on both sides of the street.

Madison Avenue is a two lane street that intersects El Camino Real from the west side. It provides access to residential neighborhoods. The eastbound approach is stop controlled at El Camino Real and vehicles are allowed to turn right and left onto El Camino Real. Parking is allowed on both sides of the street.

Vera Avenue is a two lane street that intersects El Camino Real from the west side. It provides access to residential neighborhoods. The eastbound approach is stop controlled and vehicle turns are restricted to right-in/right-out only due to the median on El Camino Real. Parking is allowed on both sides of the street.

Maple Street is a two lane street that intersects El Camino Real from the east side. It provides access to residential neighborhoods and is signalized at its intersection with El Camino Real.

Beech Street is a two lane street that intersects El Camino Real from the east side. It provides access to commercial land uses. The westbound approach at its intersection with El Camino Real is stop controlled and vehicles are allowed to turn right and left onto El Camino Real. Parking is allowed on both sides of the street.

Cedar Street is a two lane street that intersects El Camino Real from the east side. It provides access to commercial land uses. The westbound approach at its intersection with El Camino Real is stop controlled and vehicles are allowed to turn right and left onto El Camino Real. Parking is allowed on both sides of the street.

Roosevelt Avenue is a two lane street that intersects El Camino Real from the west side. The street provides access to residential neighborhoods and is signalized at its intersection with El Camino Real.

Chestnut Street is a two lane street that intersects El Camino Real from the east side. It provides access to residential neighborhoods and parking is only allowed on the south side of the street. The intersection of Chestnut Street/El Camino Real is signalized, and the eastbound approach of the intersection is a driveway.

Lathrop Street is a one lane street that runs in the eastbound direction only from El Camino Real. It provides access to residential, retail, and commercial uses and parking is allowed on both sides of the street.

Pine Street is a one lane one-way westbound street that intersects El Camino Real from the east side. It provides access to commercial land uses and Woodside Road (SR 84). The westbound approach at its intersection with El Camino Real is stop controlled and vehicle turns are restricted to right-out only due to the median on El Camino Real. Parking is allowed on both sides of the street.

Oak Avenue is a two lane street that intersects El Camino Real from the west side and provides access to residential neighborhoods, with parking allowed on both sides of the street. The intersection of El Camino Real/Oak Avenue is signalized.

Main Street is a two lane street that intersects El Camino Real from the east side and provides access to the Downtown area and the SR 84 westbound on- and off-ramps. The westbound approach is stop controlled and vehicle turns are restricted to right-in/right-out only. Parking is allowed on both sides of the street.

Redwood Avenue is a two lane street that intersects El Camino Real from the west side. It provides access to residential neighborhoods and the SR 84 westbound on- and off-ramps. The eastbound approach is yield controlled at its intersection with El Camino Real and vehicle turns are restricted to right-in/right-out only. Parking is allowed on both sides of the street.

Manzanita Street is a two lane street that intersects El Camino Real from the east side. It provides access to a few single family residences. The westbound approach at its intersection with El Camino Real is stop-controlled and vehicle turns are restricted to right-in/right-out only. Parking is allowed on both sides of the street.

Laurel Street is a two lane street that intersects El Camino Real from the east side. It provides access to a residential neighborhood and to the eastbound SR 84 on- and off-ramps. The westbound approach at its intersection with El Camino Real is yield-controlled and vehicle turns are restricted to right-in/right-out only. Parking is allowed on both sides of the street.

Hazel Avenue is a two lane street that intersects El Camino Real from the west side. It provides access to residential neighborhoods and to the eastbound SR 84 on- and off-ramps. The eastbound approach at its intersection with El Camino Real is stop-controlled and vehicle turns are restricted to right-in/right-out only. Parking is prohibited along Hazel Avenue between El Camino Real and the SR 84 eastbound ramps.

Willow Street is a two lane street that intersects El Camino Real from the east side. The westbound approach at its intersection with El Camino Real is stop-controlled and vehicle turns are restricted to right-in/right-out only. Parking is allowed on both sides of the street.

Hemlock Avenue is a two lane street that intersects El Camino Real from the west side and provides access to residential neighborhoods. The eastbound approach at its intersection with El Camino Real is stop-controlled and vehicle turns are restricted to right-in/right-out only. Parking is allowed on both sides of the street. Parking is allowed on both sides of the street.

Charter Street is a two lane street that intersects El Camino Real from the east side and provides access to commercial and retail land uses, with parking allowed on both sides of the street. The intersection of Charter Street/El Camino Real is signalized, and the eastbound approach of the intersection is a driveway that provides access to a hotel.

Center Street is a two lane street that intersects El Camino Real from the west side, with parking allowed on the south side only and provides access to residential neighborhoods. The intersection of Center Street/El Camino Real is signalized, and the westbound approach is a driveway that provides access to a shopping center.

Northumberland Avenue is a two lane street that intersects El Camino Real from the east side. It provides access to residential neighborhoods. The intersection is stop controlled and vehicles are allowed to turn right and left onto El Camino Real. Parking is allowed on both sides of the street.

Carlos Avenue is a two lane street that intersects El Camino Real from the west side and provides access to residential neighborhoods. The eastbound approach is stop controlled at its intersection with El Camino Real and vehicle turns are restricted to right-in/right-out only. Parking is allowed on both sides of the street.

Oakwood Drive-Dumbarton Avenue are two lane streets that intersect El Camino Real from the west and east side, respectively. Each provide access to residential neighborhoods. Their intersection with El Camino Real is signalized and parking is allowed on both sides of the street.

Renato Court is a two lane street that intersects El Camino Real from the west side. It provides access to residential neighborhoods. The eastbound approach is stop controlled at its intersection with El Camino Real and vehicle turns are restricted to right-in/right-out only. Parking is allowed on both sides of the street.

4 Pedestrian Facilities

Within Redwood City, continuous sidewalks are currently provided along both sides of El Camino Real with varying widths and physical conditions. The locations of marked crosswalks are shown on Figure 2, pedestrian volumes are shown on Figure 3, and a complete inventory of pedestrian facilities is provided in Appendix A.

4.1 Existing Sidewalks

Existing sidewalks are continuous along the entire corridor on both sides, varying in width depending on development along the El Camino Real frontage. Sidewalks are typically six feet wide along the corridor, with some as wide as 13 feet along the east side of El Camino Real between Brewster Avenue and Broadway, where retail land uses are complemented by wide sidewalks and on-street parallel parking. In some locations, 'street furniture', traffic signal poles, street light poles, trees, and other signage poles limit functional sidewalk width that may present difficulties for pedestrians with accessible needs. At some locations, sidewalks are cracked or uneven and in need of repair.

Street furniture on narrow sidewalks (left) and cracking on existing sidewalks (right).

4.2 Crosswalk Locations

Marked controlled pedestrian crosswalks, along with pedestrian crossing signal equipment at signalized intersections, are provided across most legs at intersections along the El Camino Real corridor, and have crosswalk markings as follows and as depicted in Figure 2:

- Continental crosswalk markings are provided on the north and east legs of El Camino Real/Maple Street
- Standard crosswalk markings are provided at all other marked controlled crossing locations
- Standard yellow school zone crosswalk markings are provided across all legs of El Camino Real/Broadway and El Camino Real/James Avenue

Continental crosswalk

Standard crosswalk

Standard yellow school zone crosswalk

At some intersections, marked crossings are not provided on one leg of the intersection. No marked crossings of El Camino Real are provided at Hazel Avenue-Laurel Street or Redwood Avenue-Main Street. Guard rails prohibit crossings at the following locations:

- South leg of El Camino Real/Whipple Avenue
- South leg of El Camino Real/Maple Street
- North leg of El Camino Real/Roosevelt Avenue
- North leg of El Camino Real/Northumberland Avenue
- South leg of El Camino Real/Dumbarton Avenue-Oakwood Drive

There are three uncontrolled marked crosswalks on El Camino Real within the study area:

- Standard crosswalk across the north leg of El Camino Real/Finger Avenue, with pedestrian crossing signage
- Standard crosswalk across the south leg of El Camino Real/Edgewood Road, with pedestrian crossing signage
- High-visibility ladder-style crosswalk with "shark's teeth" yield line markings across the south leg of El Camino Real/Northumberland Avenue, with a pedestrian refuge area within the median and "yield to pedestrians" crossing signage.

A high-visibility ladder-style crosswalk across the south leg of El Camino Real/Northumberland Avenue provides a pedestrian refuge via a break in the raised median island (left). A standard uncontrolled crosswalk across El Camino Real (ECR) located on the south leg of ECR/Edgewood Road, on the other hand, forces pedestrians to cross approximately 70 feet without refuge from vehicle traffic (right).

"Shark's Teeth Yield Lines

Additional crosswalk locations, while properly marked, are located where large right-turn volumes and large turn radii result in vehicle speeds that are inconsistent with meeting goals for safe pedestrian crossings.

Crosswalk at El Camino Real/Main Street-Spruce Street. Intersection geometry that lends itself to higher vehicle speeds may result in crosswalks that are inconsistent with meeting safety objectives for pedestrian crossings.

4.3 Curb Ramps

At most marked crosswalk locations, curb ramps are provided. Curb ramps are also provided at most intersecting street crossings along El Camino Real. A complete inventory is provided in Appendix A.

4.4 Medians

There are existing raised medians on all sections of El Camino Real in the study corridor. Wider medians are upwards of 10 feet and provide tree coverage and landscaping while narrower sections provide channelization, are as wide as three feet, and have no landscaping. The median provides a pedestrian refuge at the uncontrolled crosswalk on the south leg of El Camino Real/Northumberland Avenue.

Medians vary in width and utility, providing tree coverage and landscaping where wider and channelization where narrower.

Figure 2

EL CAMINO REAL CORRIDOR PLAN

Existing Crosswalks

El Camino Real runs N/S in all intersections

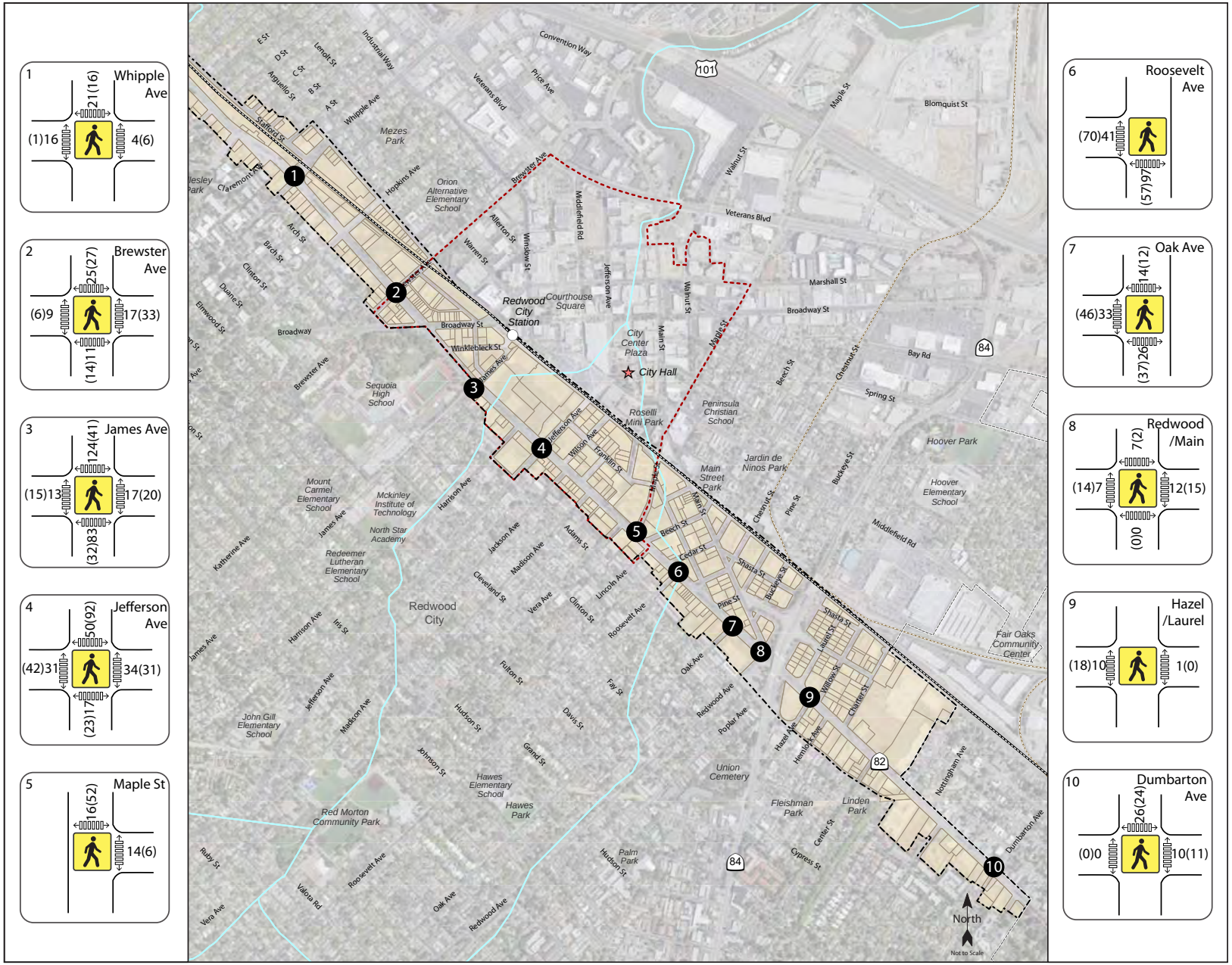

Figure 3

EL CAMINO REAL CORRIDOR PLAN

Existing Pedestrian Volumes

El Camino Real runs N/S in all intersections

- Study Intersection
- xx AM Peak Hour Volume
- (xx) PM Peak Hour Volume
- Caltrain Station
- Caltrain
- US Highway
- State Highway
- Ramps
- Railroads
- Study Area Parcels
- El Camino Real Corridor Planning Boundary
- Downtown Precise Plan Boundary
- Redwood City Limits

0 750 1,500 3,000

Feet

Data Source: City of Redwood City GIS, 2016; San Mateo County Geographic Information Systems, 2016; ESRI, 2016; Dyett & Bhatia, 2016

4.5 Pedestrian Crossing Volumes

Pedestrian crossing volume counts were conducted during the a.m. and p.m. peak hours at the study intersections while school was in session. Counts were conducted in March 2016 at the intersections of El Camino Real/Jefferson Avenue and El Camino Real/Maple Street, and in February 2015 at El Camino Real/Roosevelt Avenue. The remaining pedestrian counts at the study intersections were conducted in May 2016.

The peak crossing volume for each of the study intersections is shown on Figure 3 and count data is provided in Appendix B. The heaviest pedestrian crossings of El Camino Real were recorded at the intersection with James Avenue with over 200 crossings during the a.m. peak hour with 73 crossings during the p.m. peak hour. One other location, El Camino Real/Jefferson Avenue experiences heavy pedestrian crossings (more than 100 crossings per hour) of El Camino with 115 crossings during the p.m. peak hour. It should be noted that the intersection is adjacent to Sequoia High School and the Redwood City Caltrain Station and Transit Center—uses generally associated with more pedestrians.

Four of the intersections experienced moderate pedestrian crossings of El Camino Real with peak hour volumes greater than 25 and less than 100. These intersections included Brewster Avenue, Maple Street, Roosevelt Avenue and Oak Avenue.

The four remaining intersections experienced low pedestrian crossing volumes (25 crossings per hour or less). These intersections included Whipple Avenue, Redwood/Main, Hazel/Laurel (no crosswalks) and Dumbarton Avenue.

4.6 Connectivity

Existing pedestrian connections are provided between major activity centers, including Downtown, Redwood City Transit Center, the Redwood City Caltrain station, and Sequoia High School, though narrow sidewalks, long crossings distances, conflicts with vehicles at driveways, and vehicle speeds present barriers for pedestrians. As discussed above, these facilities would benefit from enhanced infrastructure to improve pedestrian safety, visibility, and comfort crossing the corridor.

5 Bicycle Facilities

5.1 Bike Facility Classifications

The Highway Design Manual, California Department of Transportation (Caltrans), 2012, classifies bikeways into four categories:

- Class I Multi-Use Path: a completely separated right-of-way for the exclusive use of bicycles and pedestrians with cross flows of motorized traffic minimized.
- Class II Bike Lane: a striped and signed lane for one-way bike travel on a street or highway.
- Class III Bike Route: signing only for shared use with motor vehicles within the same travel lane on a street or highway.

Guidance for Class IV Bikeways is provided in Design Information Bulletin Number 89: Class IV Bikeway Guidance (Separated Bikeways/Cycle Tracks), Caltrans, 2015.

- Class IV Bikeway – also known as a separated bikeway, a Class IV Bikeway is for the exclusive use of bicycles and includes a separation between the bikeway and the motor vehicle traffic lane. The separation may include, but is not limited to, grade separation, flexible posts, inflexible physical barriers, or on-street parking.

5.2 Study Area Bicycle Facilities

A Class III bike route is designated with sharrows on El Camino Real for one block between Broadway and Brewster Avenue (an extent of approximately 350 to 400 feet). No other bike facilities exist on El Camino Real.

El Camino Real is designated as a Class III bike route for one block, between Brewster Avenue and Broadway.

Existing bike facilities were inventoried in the field, while planned bicycle facilities along El Camino Real and on nearby side streets are detailed in the *Redwood City General Plan* and *San Mateo County Comprehensive Bicycle and Pedestrian Plan*, 2011. Existing and planned bicycle facilities on cross-streets adjacent to El Camino Real include Class II bike lanes and Class III bike routes. Per the Comprehensive Bicycle and Pedestrian Plan, "unclassified on-street bicycle facilities" are planned along El Camino Real, indicating that further study would determine the on-street bicycle facilities to be provided along the corridor.

Existing bicycle facilities are summarized in Table 1. An inventory of existing facilities is provided in Appendix C and existing and planned bicycle facilities in the study area are depicted in Figure 4.

Table 1: Bicycle Facility Summary

Existing Facilities on Cross-Streets	*Class*	*Length (miles)*	*Begin Point*	*End Point*
Edgewood Road/Wellesley Cres	II	0.6	El Camino Real	Rose Place
Whipple Avenue				
East	II	0.2	El Camino Real	Arguello Street
			Lenolt Street	Industrial Way
East	III	0.25	Arguello Street	Lenolt Street
			Industrial Way	Veterans Boulevard
West	III	0.8	El Camino Real	Myrtle Street
Hopkins Avenue	II	0.9	El Camino Real	Nevada Street
	III	0.1	Nevada Street	Opal Avenue
Brewster Avenue				
East	II	0.5	Perry Street	Main Street
West	III	0.8	El Camino Real	Myrtle Street
Broadway	II	0.4	El Camino Real	Hopkins Avenue
	III	<0.1	Arguello Street	Winslow Street
Jefferson Avenue	III	1.5	El Camino Real	Highland Avenue
Madison Avenue	III	0.4	El Camino Real	Fulton Street
		0.6	Fulton Street	Valota Road
Maple Street	II	0.2	El Camino Real	Main Street
Roosevelt Avenue	III	1.1	El Camino Real	Ruby Street

Sources: Redwood City General Plan, 2010; Field reconnaissance conducted in June 2016

5.3 Bicycle Volumes

The peak hour bicycle volumes for each of the study intersections are shown on Figure 4 and provided in Appendix B. The data shows that, today, there is limited bicycle use along the El Camino Real corridor. This is likely due to the limited bicycle infrastructure on El Camino Real, coupled with heavy vehicle traffic volumes. Additionally, many bicycle trips are made off-peak when vehicle traffic is lighter, but vehicle speeds are faster with less congested conditions, which can compromise bicycle safety. However, the limited bicycle use does not necessarily indicate that there is low demand for bicycle facilities; improved infrastructure could result in increased bicycle traffic on the corridor.

Crossing El Camino Real, the highest bicycle volumes occurred at James Avenue with approximately 20 riders during the a.m. and p.m. peak hours.

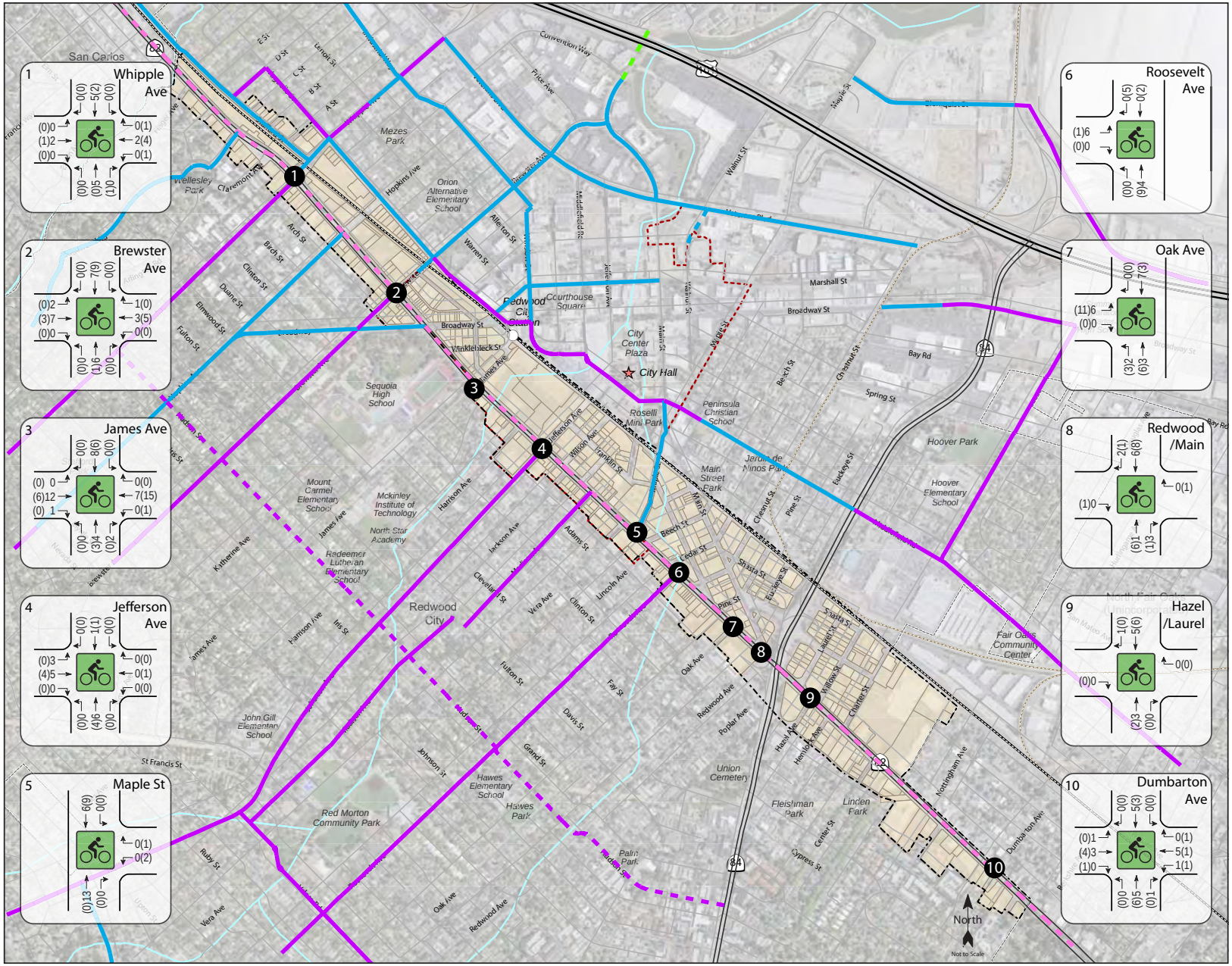

Figure 4

EL CAMINO REAL CORRIDOR PLAN

Existing & Planned Bicycle Facilities

El Camino Real runs N/S in all intersections

- Study Intersection
- xx AM Peak Hour Volume
- (xx) PM Peak Hour Volume
- Caltrain Station
- Caltrain
- US Highway
- State Highway
- Ramps
- Railroads
- Study Area Parcels
- El Camino Real Corridor Planning Boundary
- Downtown Precise Plan Boundary
- Redwood City Limits
- Class I Path, Existing
- Class I Path, Planned
- Class II Bike Lane, Existing
- Class II Bike Lane, Planned
- Class III Bike Route, Existing
- Class III Bike Route, Planned
- Unclassified On-Street Bike Facility, Planned

Data Source: City of Redwood City GIS, 2016; San Mateo County Geographic Information Systems, 2016; ESRI, 2016; Dyett & Bhatia, 2

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5.4 Bike Parking

Bike parking adjacent to El Camino Real (not within a shopping center) is provided at one location along the study corridor, on the east side of the street between Broadway and Brewster Avenue. Bike parking is limited along the corridor since sidewalks are not sufficiently wide to accommodate bike racks. Outside of the corridor, bike racks are provided in the Downtown area. Field observations noted that cyclists lock their bikes to various street sign posts where bike racks were not available.

5.5 Corridor Bicycle Facility Needs

Existing bicycle facilities in Redwood City generally run perpendicular to El Camino Real. Continuous parallel routes include Middlefield Road located one-quarter to one-half mile to the east and Hudson Street located approximately one-half mile to the west of El Camino Real. Bicycle facilities are currently planned to the south along El Camino Real in Atherton and Menlo Park and to the north in San Carlos along Stafford Street-Old County Road. Bicycle facilities along El Camino Real within Redwood City would provide continuity to a north-south regional route in the Mid-Peninsula area.

6 Transit

6.1 Transit Facilities

Local and regional transit service is provided by SamTrans and Caltrain respectively. Northbound and southbound transit service is provided via the Redwood City Caltrain station, Redwood City Transit Center, and a total of 19 bus stops along El Camino Real. Transit service and stops are illustrated on Figure 3-7 in the Existing Conditions Memorandum #1: Land Use, Streetscape, and Public Realm.

6.2 Caltrain

Caltrain is the commuter rail line serving the San Francisco Peninsula. It connects Redwood City with San Francisco to the north and San Jose and Gilroy to the south, and provides a means to connect to VTA Light Rail and BART services. On weekdays, a total of 36 trains service the Redwood City Station in the northbound and southbound directions. During the 7:00-9:00 a.m. peak hour, six trains provide service in both the northbound and southbound directions. During the 4:00-6:00 p.m. peak hour, six trains provide northbound service and four trains provide southbound service. On weekends, there are 18 trains that stop at the station on Saturdays and 16 trains that stop at the station on Sundays. All weekend trains provide local service (stopping at every station) except four – one in the morning and one in the evening in each direction – that provide express service with limited stops. These express trains do stop in Redwood City. The Redwood City Caltrain Station is located to the east of El Camino Real, and is accessible from the east via Winslow Street and from the west via James Avenue.

6.3 SamTrans

The San Mateo County Transit District operates SamTrans, a fixed-route bus transit service. SamTrans primarily serves as a local transit provider within San Mateo County, but also provides connecting regional services to neighboring Santa Clara and San Francisco Counties. Buses currently pull out of traffic to stop along the curb at bus stops, where parking is prohibited. Upon leaving the bus stop, buses must re-enter traffic. All bus stops have continuous sidewalk connections and ramps, except the southbound stop at El Camino Real/Claremont Avenue, which does not provide a direct pedestrian connection to the stop, requiring pedestrians to walk within the roadway along El Camino Real to access the curb ramp or cross the El Camino Real frontage road, which has no marked pedestrian crossings. All SamTrans buses are equipped with bike racks. Two additional bikes are allowed inside the bus, depending on passenger loads.

Southbound bus stop at El Camino Real/Claremont Avenue, view looking southeasterly. Pedestrians must cross the frontage road to access the bus stop raised island, with curb ramp access via a concrete shoulder that is not delineated or otherwise separated and is at grade with El Camino Real to the right of the travel way. Pedestrian facilities are discontinuous.

SamTrans also provides paratransit services through the affiliated Redi-Wheels and RediCoast providers. Paratransit, also known as dial-a-ride or door-to-door service, is available for those who are unable to independently use the transit system due to a disability.

The SamTrans routes schedule is summarized in Table 2.

Table 2: Weekday Transit Facility Summary

Route *Direction*	*Regions Served*	*Hours of Operation*	*# of Weekday Peak Hour Buses*	*Stop Location*
270	Mid County			
Loop	Redwood City Transit Center	6:30-**7:15**	2/**2**	El Camino Real/Jefferson, Redwood City Transit Center
273	Mid County			
Westbound	Cordilleras Center – Redwood City Transit Center	9:00-9:30 **4:30-5:30**	1/**1**	Redwood City Transit Center, El Camino Real/Winklebleck, El Camino Real/Brewster, El Camino Real/Hopkins
Eastbound		8:45-9:15 **4:30-5:00**	0/**1**	El Camino Real/Hopkins, El Camino Real/Brewster, El Camino Real/Broadway, Redwood City Transit Center
274	Mid County			
Westbound	Redwood City Transit Center – Cañada College	6:15-**10:30**	6/**5**	Redwood City Transit Center
Eastbound		6:30-**10:15**	4/**4**	Redwood City Transit Center

Table 2: Weekday Transit Facility Summary

Route Direction	*Regions Served*	*Hours of Operation*	*# of Weekday Peak Hour Buses*	*Stop Location*
275	Mid County			
Westbound	Woodside/ Fernside – Redwood City Transit Center	6:00-**7:15**	4/**4**	El Camino Real/Main, El Camino Real/Cedar, El Camino Real/Jefferson, Redwood City Transit Center
Eastbound		6:00-**7:15**		Redwood City Transit Center, El Camino Real/Jefferson, El Camino Real/Lincoln, El Camino Real/Oak,
276	Mid County			
Westbound	Redwood City Transit Center – Florence/17th	6:15-**7:00**	4/**4**	El Camino Real/Jefferson, Redwood City Transit Center
Eastbound		6:00-**7:00**	4/**4**	Redwood City Transit Center, El Camino Real/Lincoln,
278	Mid County			
Westbound	Redwood City Transit Center – Cañada College	7:30-**7:00**	2/**2**	El Camino Real/Main, El Camino Real/Cedar, El Camino Real/Jefferson, Redwood City Transit Center
Eastbound		8:00-**7:45**	1/**2**	Redwood City Transit Center, El Camino Real/Jefferson, El Camino Real/Oak,
296	South County			
Northbound	Redwood City Transit Center – Bayshore/Donohoe	5:15-**11:00**	8/**8**	El Camino Real/Jefferson, Redwood City Transit Center
Southbound		6:00-**10:45**	8/**8**	Redwood City Transit Center
398	Express/Multi-City			
Northbound	San Bruno BART -Redwood City Transit Center via SF Airport	9:00-**11:00**	0/**2**	Redwood City Transit Center, El Camino Real/Winklebleck, El Camino Real/Brewster, El Camino Real/Hopkins
Southbound		5:00-**11:50**	2/**0**	El Camino Real/Whipple, El Camino Real/Hopkins, El Camino Real/Brewster, El Camino Real/Broadway, El Camino Real/James, Redwood City Transit Center
KX	Express/Multi-City			
Northbound	San Francisco - Redwood City	5:15-9:30	2/**0**	Redwood City Transit Center, El Camino Real/Winklebleck, El Camino Real/Brewster, El Camino Real/Hopkins

Table 2: Weekday Transit Facility Summary

Route Direction	*Regions Served*	*Hours of Operation*	*# of Weekday Peak Hour Buses*	*Stop Location*
Southbound	Transit Center via SF Airport	**3:30-8:15**	0/**2**	El Camino Real/Whipple, El Camino Real/Hopkins, El Camino Real/Brewster, El Camino Real/Broadway, El Camino Real/James, Redwood City Transit Center
ECR	Express/Multi-City			
Northbound	Daly City BART - Palo Alto Transit Center	4:15-2:15	9/**8**	El Camino Real/Dumbarton, El Camino Real/Northumberland, El Camino Real/Charter, El Camino Real/Main, El Camino Real/Cedar, El Camino Real/Jefferson, Redwood City Transit Center, El Camino Real/Winklebleck, El Camino Real/Brewster, El Camino Real/Hopkins
Southbound		5:00-2:15	7/**8**	El Camino Real/Whipple, El Camino Real/Hopkins, El Camino Real/Brewster, Redwood City Transit Center, El Camino Real/Jefferson, El Camino Real/Lincoln, El Camino Real/Oak, El Camino Real/Center, El Camino Real/Oakwood
Night Service (Limited Overnight)				
297	South County			
Northbound	Redwood City Transit Center – Palo Alto Transit Center (Limited Overnight)	3:45-**5:30** **10:45**-12:21	n/a	El Camino Real/Jefferson, Redwood City Transit Center
Southbound		12:35-2:15 **10:45**-12:15	n/a	Redwood City Transit Center
397	Express/Multi-City			
Northbound	San Francisco - Palo Alto Transit Center (Limited Overnight) via SF Airport	12:45-5:00	n/a	El Camino Real/Jefferson, Redwood City Transit Center, El Camino Real/Brewster, El Camino Real/Hopkins
Southbound		1:00-6:30	n/a	El Camino Real/Whipple, El Camino Real/Hopkins, El Camino Real/Brewster, El Camino Real/James, Redwood City Transit Center

Table 2: Weekday Transit Facility Summary

Route Direction	*Regions Served*	*Hours of Operation*	*# of Weekday Peak Hour Buses*	*Stop Location*
School-Day Buses*				
72	Mid County			
Westbound	Selby Lane School – Marlborough/ Dumbarton	8:00-8:30	n/a	--
Eastbound		**1:30-4:00**	n/a	El Camino Real/Center
79	Mid County			
Westbound	Kennedy School – Florence/17th	7:00-8:15	n/a	
Eastbound		8:00-8:30	n/a	El Camino Real/Oak
		2:00-6:45	n/a	
95	Mid County			
Northbound	Redwood City Transit Center – Alameda/ Ralston	7:45-8:15	n/a	Redwood City Transit Center, El Camino Real/Winklebleck, El Camino Real/Brewster, El Camino Real/Hopkins
Southbound		**3:00-3:30**	n/a	El Camino Real/Whipple, El Camino Real/Hopkins, El Camino Real/Brewster, Redwood City Transit Center

Notes: AM-light type; **PM-bold type;** * School-day bus service only
Source: SamTrans, September 2016

6.4 Redwood City Transit Center

The Redwood City Transit Center is served by 13 buses and provides a transfer connection to Caltrain at the Redwood City Caltrain station. The transit center is only accessible via James Street, with all bus turns occurring at the El Camino Real/James Avenue intersection. It should be noted that the bus turning movements occur at the same intersection that has the highest pedestrian and bicycle volumes on the corridor. Continuous sidewalks are provided that connect the Transit Center/Caltrain Station to James Avenue, El Camino Real, Sequoia Shopping Center, and Downtown to the north. No designated bicycle facilities are provided along El Camino Real and James Avenue near the Redwood City Transit Center.

7 Vehicular Facilities and Operation

7.1 Data Collection

Transportation data, including intersection traffic volumes, pedestrian volumes, and bicycle volumes, were conducted in March 2016 at the intersections of El Camino Real/Jefferson Avenue and El Camino Real/Maple Street, and in February 2015 at El Camino Real/Roosevelt Avenue. The remaining counts at the study intersections were conducted in May 2016. Peak hour intersection turning movement volumes at the study intersections are shown on Figure 5 with full details of the counts provided in Appendix B. The data was collected on typical weekdays while local schools were in session and without the presence of special events or adverse weather. This included collection of the following data:

- Peak period vehicle turning movement counts at all study intersections
- Peak period pedestrian and bicycle turning movement counts at all study intersections
- Additional field reconnaissance to assess existing facilities in the study area was completed in June 2016.

7.2 Intersection Capacity Analysis

INTERSECTION LEVEL OF SERVICE METHODOLOGIES

Level of Service (LOS) is used to rank traffic operation on various types of facilities based on traffic volumes and roadway capacity using a series of letter designations ranging from A to F. Generally, Level of Service A represents free flow conditions and Level of Service F represents forced flow or breakdown conditions. A unit of measure that indicates a level of delay generally accompanies the LOS designation.

The study intersections were analyzed using methodologies published in the *Highway Capacity Manual* (HCM), Transportation Research Board, 2000 and 2010. This source contains methodologies for various types of intersection control, all of which are related to a measurement of delay in average number of seconds per vehicle.[1]

[1] It should be noted that both HCM 2000 and HCM 2010 methodologies were used to analyze the study intersections. The HCM 2010 methodology was used when possible, while HCM 2000 was applied where limitations based on the intersection geometry or data made evaluation via the HCM 2010 methodology was deemed infeasible.

The Levels of Service for the intersections with side street stop controls, or those which are unsignalized and have one or two approaches stop controlled, were analyzed using the "Two-Way Stop-Controlled" intersection capacity method from the HCM. This methodology determines a level of service for each minor turning movement by estimating the level of average delay in seconds per vehicle. Results are presented for individual movements together with the weighted overall average delay for the intersection.

The study intersections that are currently controlled by a traffic signal were evaluated using the signalized methodology from the HCM. This methodology is based on factors including traffic volumes, green time for each movement, phasing, whether or not the signals are coordinated, truck traffic, and pedestrian activity. Average stopped delay per vehicle in seconds is used as the basis for evaluation in this LOS methodology. For purposes of this study, delays were calculated using optimized signal timing under a coordinated controller scheme since the City employs an adaptive traffic signal system that automatically adjusts signal timing based on traffic demands.

The ranges of delay associated with the various levels of service are indicated in Table 3.

Table 3: Intersection Level of Service Criteria

LOS	*Two-Way Stop-Controlled*	*Signalized*
A	Delay of 0 to 10 seconds. Gaps in traffic are readily available for drivers exiting the minor street.	Delay of 0 to 10 seconds. Most vehicles arrive during the green phase, so do not stop at all.
B	Delay of 10 to 15 seconds. Gaps in traffic are somewhat less readily available than with LOS A, but no queuing occurs on the minor street.	Delay of 10 to 20 seconds. More vehicles stop than with LOS A, but many drivers still do not have to stop.
C	Delay of 15 to 25 seconds. Acceptable gaps in traffic are less frequent, and drivers may approach while another vehicle is already waiting to exit the side street.	Delay of 20 to 35 seconds. The number of vehicles stopping is significant, although many still pass through without stopping.
D	Delay of 25 to 35 seconds. There are fewer acceptable gaps in traffic, and drivers may enter a queue of one or two vehicles on the side street.	Delay of 35 to 55 seconds. The influence of congestion is noticeable, and most vehicles have to stop.
E	Delay of 35 to 50 seconds. Few acceptable gaps in traffic are available, and longer queues may form on the side street.	Delay of 55 to 80 seconds. Most, if not all, vehicles must stop and drivers consider the delay excessive.
F	Delay of more than 50 seconds. Drivers may wait for long periods before there is an acceptable gap in traffic for exiting the side streets, creating long queues.	Delay of more than 80 seconds. Vehicles may wait through more than one cycle to clear the intersection.

Reference: Highway Capacity Manual, Transportation Research Board, 2000 and 2010

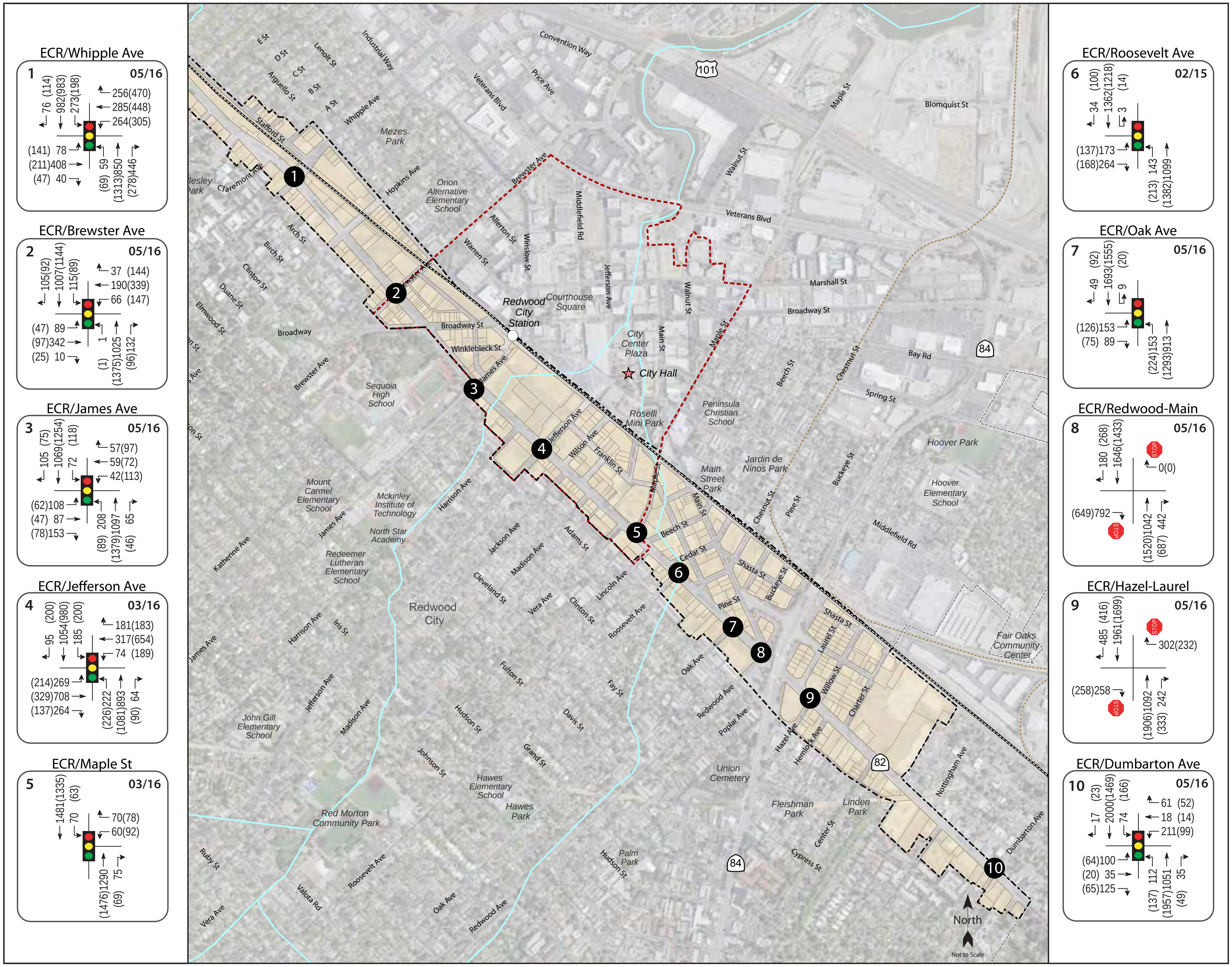

Figure 5

EL CAMINO REAL CORRIDOR PLAN

Existing Traffic Volumes

El Camino Real (ECR) runs N/S in all intersections

- Study Intersection
- xx AM Peak Hour Volume
- (xx) PM Peak Hour Volume
- Caltrain Station
- Caltrain
- US Highway
- State Highway
- Ramps
- Railroads
- Study Area Parcels
- El Camino Real Corridor Planning Boundary
- Downtown Precise Plan Boundary
- Redwood City Limits

0 750 1,500 3,000
Feet

Data Source: City of Redwood City GIS, 2016; San Mateo County Geographic Information Systems, 2016; ESRI, 2016; Dyett & Bhatia, 2

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TRAFFIC OPERATION STANDARDS OF SIGNIFICANCE

Redwood City's standards of significance are established in the City's General Plan. For motor vehicles in all areas of the city except the Downtown area, the City has established an acceptable threshold of LOS D or better.

EXISTING INTERSECTION OPERATION

Operating conditions during the a.m. and p.m. peak periods were evaluated to capture the highest volumes on the local transportation network. The morning peak hour occurs between 7:00 and 9:00 a.m. and reflects conditions during the home to work or school commute, while the p.m. peak hour occurs between 4:00 and 6:00 p.m. and typically reflects the highest level of congestion during the homeward bound commute. A summary of the intersection level of service calculations is contained in Table 4, and copies of the Level of Service calculations are provided in Appendix D.

The intersections are currently operating acceptably, at LOS D or better overall during both peak hours. The eastbound and westbound stop controlled approaches at El Camino Real/Hazel Avenue-Laurel Avenue operate deficiently at LOS F, though the intersection is operating acceptably overall during the a.m. and p.m. peak hours due to the free flow conditions on El Camino Real. It should be noted that these approaches serve as the vehicular connection from the SR 84 ramps to El Camino Real, and are already limited to right-turns only. Further evaluation of the approaches to determine the need to signalize the intersections may be needed.

Table 4: Existing Peak Hour Intersection Levels of Service

Study Intersection Approach	*AM Peak*		*PM Peak*	
	Delay	*LOS*	*Delay*	*LOS*
1. El Camino Real/Whipple Avenue	39.7	D	47.5	D
2. El Camino Real/Brewster Avenue	13.5	B	11.2	B
3. El Camino Real/James Avenue	15.3	B	26.2	C
4. El Camino Real/Jefferson Avenue	37.1	D	42.1	D
5. El Camino Real/Maple Street	12.7	B	9.3	A
6. EL Camino Real/Roosevelt Avenue	21.2	C	11.9	B
7. El Camino Real/Oak Avenue	14.9	B	10.4	B
8. El Camino Real/Redwood Avenue-Main Street	0.0	A	0.1	A
Southwestbound (Main Street) Approach	*12.7*	*B*	*16.8*	*C*
9. El Camino Real/Hazel Avenue-Laurel Street	26.6	D	15.8	C
Eastbound (Hazel Avenue) Approach	**	***F***	**	***F***
Westbound (Laurel Street) Approach	***51.8***	***F***	**	***F***
10. El Camino Real/Oakwood Drive-Dumbarton Avenue	32.9	C	18.2	B

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; Results for minor approaches to two-way stop-controlled intersections are indicated in *italics*; ** = delay greater than 120 seconds; **Bold** text = deficient operation

QUEUING

Vehicular queuing along the El Camino Real corridor at the study intersections was determined using the SimTraffic application of Synchro. Queue statistics were averaged over five runs of SimTraffic. The queuing calculations are summarized in Table 5 and results are contained in Appendix E. In general, these conditions reveal that the longest queues were determined to be in the southbound direction during the a.m. peak hour, and in the northbound direction during the p.m. peak hour, with maximum projected through-lane queues intermittently spilling back to adjacent intersections. Field observations confirmed that during the p.m. peak hour, northbound queues spillback from Oak Avenue to Willow Street.

Table 5: Existing Peak Hour Queues on El Camino Real

Corridor Cross-Street El Camino Real Approach	*Northbound*			*Southbound*		
	L/LT	*T*	*TR/R*	*L/U*	*T*	*TR/R*
1. Whipple Ave						
Available Storage	155	1,538	150	250	260	260
Maximum Queue	121/**161**	229/787	**188/231**	213/201	**279/284**	**293/284**
2. Brewster Ave						
Available Storage	1,221	1,221	75	260	1,538	50
Maximum Queue	118/122	143/158	**98/86**	141/117	183/177	**89/85**
3. James Ave						
Available Storage	160	854	200	160	1,221	90
Maximum Queue	**207**/152	343/262	**209**/185	97/**185**	227/340	**110/111**
4. Jefferson Ave						
Available Storage	230	253	190	225	854	260
Maximum Queue	280/298	**362/373**	185/**231**	**302/275**	845/508	**381/343**
5. Maple Street						
Available Storage	--	131	131	125	894	--
Maximum Queue	--	**171/171**	56/50	110/79	**1,039**/470	--
6. Roosevelt Ave						
Available Storage	90	751	--	60	354	70
Maximum Queue	**127/128**	227/353	--	31/**62**	339/289	**76/94**
7. Oak Ave						
Available Storage	225	335	--	115	751	100
Maximum Queue	162/201	216/152	--	21/46	194/255	**158/147**
8. Redwood Ave-Main St						
Available Storage	--	361	361	--	335	--
Maximum Queue	--	55/155	43/87	--	53/67	--

Table 5: Existing Peak Hour Queues on El Camino Real

Corridor Cross-Street El Camino Real Approach	*Northbound*			*Southbound*		
	L/LT	*T*	*TR/R*	*L/U*	*T*	*TR/R*
9. Hazel Ave-Laurel Ave						
Available Storage	--	2,610	2,610	--	460	361
Maximum Queue	--	0/10	0/15	--	0/4	11/0
10. Oakwood Dr-Dumbarton Ave						
Available Storage	210	650	650	190	2,711	2,711
Maximum Queue	178/**242**	239/381	145/245	138/176	271/167	1,342/182

Notes: L = left-turn, U = U-turn, LT = left-through, T = through, TR = through-right, R = right-turn; Maximum queues are shown for AM/PM; Maximum queues are based on the average of the 95th Queue from five SIMTRAFFIC runs; All distances are measured in feet; **Bold** text = queue length exceeds available storage

7.3 Vehicle Parking

Vehicular parking along the El Camino Real corridor is provided in four forms: on-street parking, off-street public parking plazas, off-street private parking lots and off-street commuter parking.

ON-STREET PARKING

On-street parallel parking is provided along segments of El Camino Real where the roadway width permits. In Redwood City on-street parking on El Camino Real is generally limited to two hours. There is sufficient space to park approximately 96 vehicles on the east side of El Camino Real and 170 vehicles on the west side within the study area. Additional on-street parking is available on side streets throughout the corridor. The inventory of on-street parking spaces in the corridor is included in Appendix F.

OFF-STREET PRIVATE PARKING

Shopping centers and businesses along El Camino Real generally provide off-street private parking. Parking in these lots is intended for the use of the site's employees and visitors and is controlled by the respective business or shopping center.

OFF-STREET COMMUTER PARKING

Paid parking is available at the Redwood City Caltrain station for the use of Caltrain riders. Caltrain sells both daily and monthly parking permits for the lot. The requirement for paid parking at the Caltrain station is enforceable at all times.

VEHICLE PARKING OCCUPANCY

On-street parking occupancy surveys were conducted on August 9, 2016. Parking occupancy surveys were conducted along the east side of El Camino Real from Finger Avenue to Northumberland Avenue and along the west side of El Camino Real from Finger Avenue to Renato Court. Parking occupancy was also collected on side-streets for the block immediately adjacent to El Camino Real. The parking occupancy survey was conducted during the weekday midday period. The street parking occupancy on El Camino Real during weekdays on the east side and west side are shown in Table 6 and Table 7, respectively. Parking occupancy for cross-streets during weekdays on the east and west sides are shown in Table 8 and Table 9, respectively. Street parking spaces are typically underutilized along El Camino Real, with occupancy ranging between 65 and 70 percent. Side streets are also underutilized, with occupancy ranging between 79 and 82 percent. It should be noted that the side street parking occupancy survey was conducted during the midday peak. Given that many of the side streets serve residential neighborhoods, the peak parking demand is likely to occur during the evening rather than during the daytime, though the occupancy survey reveals that excess parking on these cross streets could be used by other complementary land uses.

The available on-street parking demand along El Camino Real is approximately 70 percent and on cross-streets of the corridor is approximately 80 percent; therefore, area-wide parking is currently underutilized. Overall area-wide parking utilization should not exceed 85 percent. Existing right-of-way currently used for parking, especially along El Camino Real, could be repurposed to improve facilities for other modes, such as wider sidewalks or bike facilities along the corridor.

Table 6: Existing Weekday On-Street Vehicle Parking Occupancy (East Side)

Segment of El Camino Real	*# Parking Spaces*	*# Parked Vehicles*	*Percent Occupancy*
Northern city limit to Claremont Avenue	29	18	62%
Whipple Avenue to Hopkins Avenue	6	0	0%
Hopkins Avenue to Brewster Avenue	21	10	48%
Brewster Avenue to Broadway	9	9	100%
Winklebleck Street to James Avenue	7	3	43%
Diller Street to Beech Street	15	13	87%
Beech Street Chestnut Avenue	9	8	89%
Total & Overall Average Occupancy	**96**	**62**	**65%**

Table 7: Existing Weekday On-Street Vehicle Parking Occupancy (West Side)

Segment of El Camino Real	*# Parking Spaces*	*# Parked Vehicles*	*Percent Occupancy*
Northern city limit to Finger Avenue	6	0	0%
Finger Avenue to Avondale Avenue	3	0	0%
Edgewood Road to Claremont Avenue	14	12	86%
Whipple Avenue to Hopkins Avenue	13	9	69%
Hopkins Avenue to Brewster Avenue	16	15	94%
Brewster Avenue to Broadway	2	1	50%
Broadway to James Avenue	26	22	85%
James Avenue to Harrison Avenue	17	12	71%
Jefferson Avenue to Jackson Avenue	2	0	0%
Jackson Avenue to Madison Avenue	6	3	50%
Madison Avenue to Vera Avenue	14	13	93%
Vera Avenue to Maple Street	2	2	100%
Maple Street to Lincoln Avenue	9	7	78%
Lincoln Avenue to Roosevelt Avenue	6	6	100%
Roosevelt Avenue to Oak Avenue	17	13	76%
Charter Street to Center Street	5	1	20%
Center Street to Carlos Avenue	20	8	40%
Totals & Overall Average Occupancy	**178**	**125**	**70%**

Table 8: Existing Weekday On-Street Vehicle Parking Occupancy (East Side Streets)

Side Street	*Percent Occupancy*	
	North Side	*South Side*
Brewster Avenue	0%	100%
Broadway	92%	100%
Winklebleck Street	33%	50%
Wilson Street	91%	50%
Diller Street	100%	100%
Beech Street	100%	100%
Cedar Street	100%	100%
Lathrop Street	100%	75%
Pine Street	0%	100%
Main Street	44%	100%
Manzanita Street	91%	25%
Laurel Street	50%	0%
Willow Street	100%	100%
Charter Street	62%	80%
Overall Average Occupancy	**82%**	

Table 9: Existing Weekday On-Street Vehicle Parking Occupancy (West Side Streets)

Side Street	*Percent Occupancy*	
	North Side	*South Side*
Finger Avenue	7%	36%
Avondale Avenue	25%	55%
Edgewood Road	92%	100%
Claremont Avenue	93%	92%
Hopkins Avenue	20%	88%
Brewster Avenue	--	0%
Broadway	100%	67%
Harrison Avenue	92%	100%
Jackson Avenue	92%	100%
Madison Avenue	92%	100%
Vera Avenue	69%	82%
Lincoln Avenue	82%	100%
Roosevelt Avenue	100%	100%
Oak Avenue	100%	100%
Redwood Avenue	83%	--
Hemlock Avenue	100%	90%
Center Street	--	100%
Carlos Avenue	47%	44%
Oakwood Drive	50%	--
Renato Court	100%	100%
Overall Average Occupancy	**79%**	

7.4 Driveways

Generally, retail and commercial uses along the corridor are accessed from El Camino Real by vehicles via one or more driveways. Driveway spacing varies, with driveways spaced as closely as 30 feet from driveway centerline-to-centerline, leaving a length of 15 feet where pedestrians are not in conflict with turning vehicles. Some block faces along El Camino Real have very few or no driveways where frontages have been recently redeveloped. Driveways vary in width between 20 and 40 feet. Optimum driveway spacing and widths can reduce the potential for conflicts between vehicles and non-motorized modes by reducing confusion for drivers and limiting opportunities where drivers and non-motorized modes spatially overlap. Further study in later documents will investigate opportunities that reduce the number and width of driveways along the corridor.

8 Collision History and Safety Conditions

The collision history for the study area was reviewed to determine any trends or patterns that may indicate a safety issue. Collision rates were calculated based on records available from the City's Police Department. The most current five-year period available is June 2011 through May 2016.

As presented in Table 10, the calculated collision rates for the study intersections were compared to average collision rates for similar facilities statewide, as indicated in 2010 Collision Data on California State Highways, California Department of Transportation. Calculations for the intersection collision rates are provided in Appendix G.

Table 10: Collision Rates at Study Intersections Compared to Statewide Average

Study Intersection	*Number of Collisions (2011-2016)*	*Collision Rate (c/mve)*	*Injury Rate*	*Fatality Rate*
1. El Camino Real/Whipple Avenue	44	**0.53** (0.43)	27.3% (37.9%)	0.0% (0.4%)
2. El Camino Real/Brewster Avenue	38	**0.58** (0.43)	36.8% (37.9%)	0.0% (0.4%)
3. El Camino Real/James Avenue	16	0.26 (0.43)	25.0% (37.9%)	0.0% (0.4%)
4. El Camino Real/Jefferson Avenue	47	**0.57** (0.43)	**42.6%** (37.9%)	0.0% (0.4%)
5. El Camino Real/Maple Street	11	0.19 (0.27)	**54.5%** (37.3%)	0.0% (0.4%)
6. El Camino Real/Roosevelt Avenue	20	**0.34** (0.27)	35.0% (37.3%)	0.0% (0.4%)
7. El Camino Real/Oak Avenue	29	**0.31** (0.27)	**37.9%** (37.3%)	0.0% (0.4%)
8. El Camino Real/Redwood Avenue-Main Street	7	0.07 (0.26)	28.6% (37.4%)	0.0% (0.4%)
9. El Camino Real/Hazel Avenue-Laurel Street	18	**0.45** (0.26)	11.1% (37.4%)	0.0% (0.4%)
10. El Camino Real/Oakwood Drive-Dumbarton Avenue	14	0.19 (0.43)	21.4% (37.9%)	0.0% (0.4%)

Bold text = intersection collision rate greater than the Statewide average rate
Source: c/mve = collisions per million vehicles entering; Statewide averages are indicated in parentheses

The calculated collision rates are higher than the statewide average collision rate at the following intersections:

- **El Camino Real/Whipple Avenue:** The most common type of collision was rear-end, which accounted for 40 percent of the total collisions at the intersection, followed by sideswipe, which accounted for 30 percent of the total collisions, and broadside, accounting for 18 percent of the total collisions. Two collisions involved bicycles and one involved pedestrians. Most of the rear-end collisions were due to unsafe speed or following too closely and occurred on the northbound and southbound El Camino Real approaches.
- **El Camino Real/Brewster Avenue:** The most common type of collision was rear-end, which accounted for 55 percent of the total collisions at the intersection, followed by broadside, which accounted for 16 percent of the total collisions, and sideswipe, accounting

for 11 percent of the total collisions. Two collisions involved bicycles and two involved pedestrians. Most of the rear-end collisions were due to unsafe speed or following too closely and occurred on the northbound and southbound El Camino Real approaches.

- **El Camino Real/Jefferson Avenue:** The most common type of collision was rear-end, which accounted for 40 percent of the total collisions at the intersection, followed by broadside, which accounted for 21 percent of the total collisions, and sideswipe, accounting for 11 percent of the total collisions. Two collisions involved bicycles and four involved pedestrians. Most of the rear-end collisions were due to unsafe speed or following too closely and occurred on the northbound and southbound El Camino Real approaches.
- **El Camino Real/Roosevelt Avenue:** The most common type of collision was rear-end, which accounted for 40 percent of the total collisions at the intersection, followed by broadside, which accounted for 25 percent of the total collisions, and sideswipe, accounting for 20 percent of the total collisions. One collision involved pedestrians. Most of the rear-end collisions were due to unsafe speed or following too closely and all occurred on the northbound and southbound El Camino Real approaches.
- **El Camino Real/Oak Avenue:** The most common type of collision was rear-end, which accounted for 48 percent of the total collisions at the intersection, followed by broadside, which accounted for 21 percent of the total collisions, and sideswipe, accounting for 17 percent of the total collisions. There were no bicycle or pedestrian-related collisions reported at the intersection. Most of the rear-end collisions were due to unsafe speed or following too closely and occurred on the northbound and southbound El Camino Real approaches.
- **El Camino Real/Hazel Avenue-Laurel Street:** The most common type of collision was rear-end, which accounted for 44 percent of the total collisions at the intersection, followed by broadside, which accounted for 11 percent of the total collisions. One collision involved bicycles. The rear-end collisions were due to unsafe speed or following too closely and generally occurred on the Hazel Avenue and Laurel Street approaches.

For the intersections with collisions rates higher than the statewide average, all (except El Camino Real/Hazel Avenue-Laurel Street) had rear-end collisions as the most common type of collision, with primary collision factors of speeding and following too closely. These collisions also occurred on the northbound and southbound El Camino Real approaches. The corridor generally has 11-foot inside lanes, but through the four-lane section of the corridor El Camino Real has a 24-foot wide outside travel lane. Vehicles travelling along the outside lane generally stay to the left, so the remainder of the width functions as a shoulder. Generally, wide shoulders are used on high-speed roadways to improve capacity by increasing driver comfort resulting in higher operating speeds. The excess width available along the corridor can be reallocated toward bicycle and improved pedestrian facilities. With the removal of the shoulder, the number of rear-end collisions could be reduced resulting from the decrease in driver comfort.

The calculated injury rates are higher than the statewide average at the following intersections:

- El Camino Real/Jefferson Avenue
- El Camino Real/Maple Street

- El Camino Real/Oak Avenue

For the 10 study intersections evaluated, a total of nine were pedestrian-involved collisions and four were bicycle-involved collisions over the past five-year period.

It should be noted that only the study area intersections were evaluated for collision history, and that additional collision trends or patterns could be revealed based on information from other intersections and roadway segments along the corridor.

9 References

2010 Collision Data on California State Highways, California Department of Transportation, 2010
City of Redwood City General Plan, City of Redwood City, 2010
Design Information Bulletin Number 89: Class IV Bikeway Guidance (Separated Bikeways/Cycle Tracks), California Department of Transportation, 2015
Highway Design Manual, 6th Edition, California Department of Transportation, 2012
Highway Capacity Manual, Transportation Research Board, 2000
Highway Capacity Manual, Transportation Research Board, 2010
SamTrans, http://www.samtrans.com/
San Mateo County Comprehensive Bicycle and Pedestrian Plan, City/County Association of Governments of San Mateo County, 2011

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Appendix A: Pedestrian Facilities Inventory

Redwood City - El Camino Real Pedestrian Facilities Inventory

Date: June 2016

			Number of Pedestrian Curb Ramps				Sidewalks		Crosswalks			
Corridor	Northern Limit	Southern Limit	Northeast corner	Southeast corner	Southwest corner	Northwest corner	East side	West Side	North	East	South	West
El Camino Real at	Northern City Limit	Finger Avenue					continuous	continuous				
El Camino Real	Finger Avenue	Avondale Avenue	1		1	1	continuous	continuous	standard			
El Camino Real	Avondale Avenue	Edgewood Road			1	1	continuous	continuous				
El Camino Real	Edgewood Road**	Claremont Avenue		1	1	1	continuous	continuous			standard	standard
El Camino Real	Claremont Avenue	Whipple Avenue			1		continuous	continuous				
El Camino Real	Whipple Avenue	Hopkins Avenue	1	1	1	1	continuous	continuous	standard	standard		standard
El Camino Real	Hopkins Avenue	Brewster Avenue	1	1	1	1	continuous	continuous	standard		standard	standard
El Camino Real	Brewster Avenue	Broadway	1	2	2	1	continuous	continuous	standard	standard	standard	standard
El Camino Real	Broadway	Winklebeck Street	2	1	1	2	continuous	continuous	yellow standard	yellow standard	yellow standard	yellow standard
El Camino Real	Winklebeck Street	James Avenue	1	1			continuous	continuous		standard		
El Camino Real	James Avenue	Harrison Avenue	1	2	2	2	continuous	continuous	yellow standard	yellow standard	yellow standard	yellow standard
El Camino Real	Harrison Avenue	Jefferson Avenue			1	1	continuous	continuous				
El Camino Real	Jefferson Avenue	Wilson Street	2	1	1	2	continuous	continuous	standard	standard	standard	standard
El Camino Real	Wilson Street	Jackson Avenue	1	1			continuous	continuous		standard		
El Camino Real	Jackson Avenue	Diller Street			1	1	continuous	continuous				standard
El Camino Real	Diller Street	Madison Avenue	1	1			continuous	continuous		standard		
El Camino Real	Madison Avenue	Vera Avenue			1	1	continuous	continuous				standard
El Camino Real	Vera Avenue	Maple Street			1	1	continuous	continuous				standard
El Camino Real	Maple Street	Beech Street	1	1		1	continuous	continuous	continental	continental		
El Camino Real	Beech Street	Lincoln Avenue	1	1			continuous	continuous		standard		
El Camino Real	Lincoln Avenue	Cedar Street			1	1	continuous	continuous				standard
El Camino Real	Cedar Street	Roosevelt Avenue	1	1			continuous	continuous		standard		
El Camino Real	Roosevelt Avenue	Chestnut Street		1	2	1	continuous	continuous			standard	standard
El Camino Real	Chestnut Street	Lathrop Street	1	1			continuous	continuous	standard	standard		
El Camino Real	Lathrop Street	Pine Street	1	1			continuous	continuous		standard		
El Camino Real	Pine Street	Oak Avenue	1	1			continuous	continuous		standard		
El Camino Real	Oak Avenue	Redwood Avenue	1	1	1	1	continuous	continuous	standard		standard	standard
El Camino Real	Redwood Avenue	Manzanita Street			2	2	continuous	continuous				continental
El Camino Real	Manzanita Street*	Laurel Street	1	1			continuous	continuous				
El Camino Real	Laurel Street	Hazel Avenue/Willow Street	2	2			continuous	continuous		standard		
El Camino Real	Hazel Avenue/Willow Street	Charter Street	1	1	2	2	continuous	continuous				standard
El Camino Real	Charter Street	Center Street	1	1	1		continuous	continuous		standard	standard	
El Camino Real	Center Street	Northumberland Avenue	1	2	1	1	continuous	continuous	standard		standard	standard
El Camino Real	Northumberland Avenue	Nottingham Avenue	1	2		1	continuous	continuous			ladder	
El Camino Real	Nottingham Avenue	Buckingham Avenue	1	1			continuous	continuous				
El Camino Real	Buckingham Avenue	Dumbarton Avenue	1	1	1	1	continuous	continuous				
El Camino Real	Dumbarton Avenue	Southern City Limit	2	1	1	2	continuous	continuous	standard	standard		standard

Appendix B: Traffic, Bicycle, and Pedestrian Volumes

Study Name 01 RCW
Start Date 05/26/2016
Start Time 7:00 AM
Site Code ALL VEHICLES

AM

	El Camino Real Southbound						Whipple Ave Westbound						El Camino Real Northbound						Whipple Ave Eastbound						Total
Start Time	Left	Thru	Right	RTOR	U-Turn	Total	Left	Thru	Right	RTOR	U-Turn	Total	Left	Thru	Right	RTOR	U-Turn	Total	Left	Thru	Right	RTOR	U-Turn	Total	
7:00 AM	34	134	6	2	0	176	42	50	14	17	0	123	2	124	54	19	0	199	3	67	2	1	0	73	571
7:15 AM	35	206	6	0	2	249	67	51	11	33	0	162	3	188	52	8	1	252	10	104	5	1	0	120	783
7:30 AM	51	217	12	0	4	284	61	63	22	35	0	181	6	205	53	52	1	317	23	115	3	2	0	143	925
7:45 AM	41	198	18	0	1	258	82	75	37	48	0	242	8	246	61	36	2	353	23	119	7	0	0	149	1002
8:00 AM	77	264	18	6	5	370	51	69	33	36	0	189	10	189	80	26	1	306	13	101	12	0	0	126	991
8:15 AM	59	268	15	0	5	347	76	76	23	33	0	208	18	224	92	30	4	368	21	82	9	0	0	112	1035
8:30 AM	81	252	18	1	4	356	55	65	9	37	0	166	14	191	93	28	2	328	21	106	12	0	0	139	989
8:45 AM	63	222	17	2	2	306	69	63	23	33	0	188	10	200	80	43	1	334	36	84	9	0	0	129	957
total	441	1761	110	11	23	2346	503	512	172	272	0	1459	71	1567	565	242	12	2457	150	778	59	4	0	991	7253

Peak Hour 745-845

	El Camino Real Southbound						Whipple Ave Westbound						El Camino Real Northbound						Whipple Ave Eastbound						Total
Start Time	Left	Thru	Right	RTOR	U-Turn	Total	Left	Thru	Right	RTOR	U-Turn	Total	Left	Thru	Right	RTOR	U-Turn	Total	Left	Thru	Right	RTOR	U-Turn	Total	
7:45 AM	41	198	18	0	1	258	82	75	37	48	0	242	8	246	61	36	2	353	23	119	7	0	0	149	**1002**
8:00 AM	77	264	18	6	5	370	51	69	33	36	0	189	10	189	80	26	1	306	13	101	12	0	0	126	**991**
8:15 AM	59	268	15	0	5	347	76	76	23	33	0	208	18	224	92	30	4	368	21	82	9	0	0	112	**1035**
8:30 AM	81	252	18	1	4	356	55	65	9	37	0	166	14	191	93	28	2	328	21	106	12	0	0	139	**989**
total	258	982	69	7	15	1331	264	285	102	154	0	805	50	850	326	120	9	1355	78	408	40	0	0	526	4017
% Heavy Veh	2%	4%	3%				3%	3%	6%				4%	3%	3%				0%	1%	0%				
phf																									**0.97**

PM

	El Camino Real Southbound						Whipple Ave Westbound						El Camino Real Northbound						Whipple Ave Eastbound						Total
Start Time	Left	Thru	Right	RTOR	U-Turn	Total	Left	Thru	Right	RTOR	U-Turn	Total	Left	Thru	Right	RTOR	U-Turn	Total	Left	Thru	Right	RTOR	U-Turn	Total	
4:00 PM	46	246	18	4	9	323	91	83	25	46	0	245	19	274	35	34	4	366	34	84	15	0	0	133	1067
4:15 PM	51	221	16	3	9	300	59	98	40	48	0	245	12	293	46	27	8	386	23	84	14	1	0	122	1053
4:30 PM	49	226	17	6	4	302	74	105	75	47	0	301	17	324	55	28	5	429	40	60	12	0	0	112	1144
4:45 PM	47	242	21	6	12	328	71	104	71	47	0	293	15	303	51	20	4	393	38	62	12	0	0	112	1126
5:00 PM	34	249	27	3	7	320	86	118	71	41	0	316	11	347	37	27	6	428	30	49	7	5	0	91	1155
5:15 PM	40	266	33	1	5	345	74	121	51	67	0	313	11	339	35	25	0	410	33	50	11	0	0	94	1162
5:30 PM	37	243	22	4	7	313	77	98	60	60	1	296	10	326	30	26	4	396	36	64	9	0	0	109	1114
5:45 PM	49	196	24	4	5	278	73	91	58	52	0	274	15	324	25	33	4	401	33	46	0	0	0	79	1032
	353	1889	178	31	58	2509	605	818	451	408	1	2283	110	2530	314	220	35	3209	267	499	80	6	0	852	8853

Peak Hour 430-530

	El Camino Real Southbound						Whipple Ave Westbound						El Camino Real Northbound						Whipple Ave Eastbound						Total
Start Time	Left	Thru	Right	RTOR	U-Turn	Total	Left	Thru	Right	RTOR	U-Turn	Total	Left	Thru	Right	RTOR	U-Turn	Total	Left	Thru	Right	RTOR	U-Turn	Total	
4:30 PM	49	226	17	6	4	302	74	105	75	47	0	301	17	324	55	28	5	429	40	60	12	0	0	112	1144
4:45 PM	47	242	21	6	12	328	71	104	71	47	0	293	15	303	51	20	4	393	38	62	12	0	0	112	1126
5:00 PM	34	249	27	3	7	320	86	118	71	41	0	316	11	347	37	27	6	428	30	49	7	5	0	91	1155
5:15 PM	40	266	33	1	5	345	74	121	51	67	0	313	11	339	35	25	0	410	33	50	11	0	0	94	1162
total	170	983	98	16	28	1295	305	448	268	202	0	1223	54	1313	178	100	15	1660	141	221	42	5	0	409	4587
% Heavy Veh	2.4%	1.4%	0.9%				0.7%	0.0%	0.4%				1.9%	0.9%	2.5%				0.0%	0.5%	2.1%				
phf																									**0.99**

Study Name 01 RCW
Start Date 05/26/2016
Start Time 7:00 AM
Site Code BICYCLES ON ROAD

	El Camino Real Southbound					Whipple Ave Westbound					El Camino Real Northbound					Whipple Ave Eastbound				
Start Time	Left	Thru	Right	Right on Re	U-Turn	Left	Thru	Right	Right on Re	U-Turn	Left	Thru	Right	Right on Re	U-Turn	Left	Thru	Right	Right on Re	U-Turn
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0
7:15 AM	0	0	0	0	0	0	1	0	0	0	0	2	0	0	0	0	1	0	0	0
7:30 AM	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	2	0	0	0
7:45 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	1	0	0	0
8:45 AM	0	1	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0
			2					0					0					1		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	1	1	0	0	0	0	0	1	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0
5:45 PM	0	2	0	0	0	0	3	0	0	0	0	1	0	0	0	0	0	0	0	0
			0					3					1					0		

Study Name 01 RCW
Start Date 05/26/2016
Start Time 7:00 AM
Site Code BICYCLES ON CROSSWALK

	El Camino Real Southbound		Whipple Ave Westbound		El Camino Real Northbound		Whipple Ave Eastbound	
Start Time	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW
7:00 AM	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0
8:00 AM	0	1	2	0	0	0	0	0
8:15 AM	2	0	0	0	0	0	1	0
8:30 AM	0	0	0	0	0	0	0	0
8:45 AM	1	1	0	0	0	0	0	0
	3		2		0		1	
4:00 PM	0	1	0	0	0	0	0	0
4:15 PM	2	1	1	0	0	0	1	0
4:30 PM	0	1	1	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0
5:00 PM	1	0	0	0	0	0	0	0
5:15 PM	1	0	0	0	0	0	0	0
5:30 PM	0	0	0	1	0	0	0	0
5:45 PM	2	0	0	0	0	0	0	0
	3		1		0		0	

Study Name 01 RCW
Start Date 05/26/2016
Start Time 7:00 AM
Site Code PEDESTRIANS

	El Camino Real Southbound		Whipple Ave Westbound		El Camino Real Northbound		Whipple Ave Eastbound	
Start Time	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW
7:00 AM	1	1	0	0	0	0	1	1
7:15 AM	3	0	0	1	0	0	2	1
7:30 AM	2	1	1	0	0	0	0	0
7:45 AM	1	2	1	0	0	0	0	1
8:00 AM	6	2	1	0	0	0	7	0
8:15 AM	2	0	0	0	0	0	2	1
8:30 AM	4	4	1	1	0	0	2	3
8:45 AM	3	1	0	0	0	0	0	1
	21		4		0		16	
4:00 PM	3	1	0	1	0	0	5	1
4:15 PM	2	0	0	1	1	0	0	3
4:30 PM	3	4	0	0	0	0	0	0
4:45 PM	1	4	0	4	0	0	1	0
5:00 PM	2	0	2	0	0	0	0	0
5:15 PM	2	0	0	0	0	0	0	0
5:30 PM	4	3	3	0	0	0	0	0
5:45 PM	0	3	0	0	0	0	0	0
	16		6		0		1	

Study Name 02 RCW
Start Date 05/26/2016
Start Time 7:00 AM
Site Code ALL VEHICLES

AM

	El Camino Real Southbound						Brewster Ave Westbound						El Camino Real Northbound						Whipple Ave Eastbound						Total
Start Time	Left	Thru	Right	RTOR	U-Turn	Total	Left	Thru	Right	RTOR	U-Turn	Total	Left	Thru	Right	RTOR	U-Turn	Total	Left	Thru	Right	RTOR	U-Turn	Total	
7:00 AM	7	164	5	0	1	177	9	13	9	1	0	32	0	161	14	0	0	175	10	24	1	0	0	35	419
7:15 AM	14	229	20	4	4	271	15	17	13	0	0	45	0	215	14	4	0	233	17	45	0	0	0	62	611
7:30 AM	24	253	18	2	4	301	25	19	7	0	0	51	0	251	17	4	0	272	20	56	2	1	0	79	703
7:45 AM	21	240	26	2	7	296	14	36	4	2	0	56	1	291	30	3	0	325	23	76	1	0	0	100	777
8:00 AM	25	245	21	8	4	303	21	68	7	4	0	100	0	241	33	3	0	277	20	88	5	0	0	113	793
8:15 AM	27	244	29	7	3	310	17	55	11	2	0	85	0	256	29	4	0	289	22	81	1	0	0	104	788
8:30 AM	26	278	11	1	2	318	14	31	7	0	0	52	0	237	28	2	0	267	24	97	2	1	0	124	761
8:45 AM	25	271	12	6	10	324	14	15	1	0	0	30	0	253	25	4	0	282	23	69	0	0	0	92	728
total	169	1924	142	30	35	2300	129	254	59	9	0	451	1	1905	190	24	0	2120	159	536	12	2	0	709	5580

Peak Hour 745-845

	El Camino Real Southbound						Brewster Ave Westbound						El Camino Real Northbound						Whipple Ave Eastbound						Total
Start Time	Left	Thru	Right	RTOR	U-Turn	Total	Left	Thru	Right	RTOR	U-Turn	Total	Left	Thru	Right	RTOR	U-Turn	Total	Left	Thru	Right	RTOR	U-Turn	Total	
7:45 AM	21	240	26	2	7	296	14	36	4	2	0	56	1	291	30	3	0	325	23	76	1	0	0	100	**777**
8:00 AM	25	245	21	8	4	303	21	68	7	4	0	100	0	241	33	3	0	277	20	88	5	0	0	113	**793**
8:15 AM	27	244	29	7	3	310	17	55	11	2	0	85	0	256	29	4	0	289	22	81	1	0	0	104	**788**
8:30 AM	26	278	11	1	2	318	14	31	7	0	0	52	0	237	28	2	0	267	24	97	2	1	0	124	**761**
total	99	1007	87	18	16	1227	66	190	29	8	0	293	1	1025	120	12	0	1158	89	342	9	1	0	441	3119
% Heavy Veh	2%	4%	0%				9%	2%	0%				0%	6%	2%				0%	1%	0%				
phf																									**0.98**

PM

	El Camino Real Southbound						Brewster Ave Westbound						El Camino Real Northbound						Whipple Ave Eastbound						Total
Start Time	Left	Thru	Right	RTOR	U-Turn	Total	Left	Thru	Right	RTOR	U-Turn	Total	Left	Thru	Right	RTOR	U-Turn	Total	Left	Thru	Right	RTOR	U-Turn	Total	
4:00 PM	19	276	16	6	5	322	34	54	23	2	0	113	2	326	32	2	0	362	24	32	5	1	0	62	859
4:15 PM	16	298	19	0	6	339	14	38	8	4	0	64	1	348	21	3	0	373	10	28	5	1	0	44	820
4:30 PM	14	243	16	3	3	279	27	76	23	4	0	130	1	352	29	0	0	382	15	48	3	0	0	66	857
4:45 PM	18	267	16	3	2	306	35	73	30	2	0	140	0	337	25	4	0	366	17	34	4	5	0	60	872
5:00 PM	14	308	17	4	3	346	43	85	45	3	0	176	1	330	15	2	0	348	12	22	2	5	0	41	911
5:15 PM	23	295	27	1	6	352	39	94	27	1	0	161	0	334	17	4	0	355	11	22	5	1	0	39	907
5:30 PM	15	274	18	6	8	321	30	87	34	2	0	153	0	374	26	3	0	403	7	19	2	1	0	29	906
5:45 PM	10	246	14	5	4	279	35	65	23	4	0	127	0	349	30	7	0	386	12	29	7	1	0	49	841
total	129	2207	143	28	37	2544	257	572	213	22	0	1064	5	2750	195	25	0	2975	108	234	33	15	0	390	6973

Peak Hour 445-545

	El Camino Real Southbound						Brewster Ave Westbound						El Camino Real Northbound						Whipple Ave Eastbound						Total
Start Time	Left	Thru	Right	RTOR	U-Turn	Total	Left	Thru	Right	RTOR	U-Turn	Total	Left	Thru	Right	RTOR	U-Turn	Total	Left	Thru	Right	RTOR	U-Turn	Total	
4:45 PM	18	267	16	3	2	306	35	73	30	2	0	140	0	337	25	4	0	366	17	34	4	5	0	60	872
5:00 PM	14	308	17	4	3	346	43	85	45	3	0	176	1	330	15	2	0	348	12	22	2	5	0	41	911
5:15 PM	23	295	27	1	6	352	39	94	27	1	0	161	0	334	17	4	0	355	11	22	5	1	0	39	907
5:30 PM	15	274	18	6	8	321	30	87	34	2	0	153	0	374	26	3	0	403	7	19	2	1	0	29	906
total	70	1144	78	14	19	1325	147	339	136	8	0	630	1	1375	83	13	0	1472	47	97	13	12	0	169	3596
% Heavy Veh	1%	1%	0%				3%	1%	1%				0%	2%	6%				0%	1%	0%				
phf																									**0.99**

Study Name 02 RCW
Start Date 05/26/2016
Start Time 7:00 AM
Site Code BICYCLES ON ROAD

	El Camino Real Southbound					Brewster Ave Westbound					El Camino Real Northbound					Brewster Ave Eastbound				
Start Time	Left	Thru	Right	Right on Re	U-Turn	Left	Thru	Right	Right on Re	U-Turn	Left	Thru	Right	Right on Re	U-Turn	Left	Thru	Right	Right on Re	U-Turn
7:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	2	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
7:30 AM	0	1	0	0	0	0	2	0	0	0	0	1	0	0	0	0	0	0	0	0
7:45 AM	0	3	0	0	0	0	0	0	0	0	0	1	0	0	0	2	2	0	0	0
8:00 AM	0	1	0	0	0	0	1	0	1	0	0	0	0	0	0	0	2	0	0	0
8:15 AM	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0
8:30 AM	0	1	0	0	0	0	0	0	0	0	0	3	0	0	0	0	1	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	1	0	0	0
			0					2					0					6		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0
4:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
4:45 PM	0	2	0	0	0	0	3	0	0	0	0	0	0	0	0	0	1	0	0	0
5:00 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
5:30 PM	0	3	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
5:45 PM	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0
			0																	

Study Name 02 RCW
Start Date 05/26/2016
Start Time 7:00 AM
Site Code BICYCLES ON CROSSWALK

	El Camino Real Southbound		Brewster Ave Westbound		El Camino Real Northbound		Brewster Ave Eastbound	
Start Time	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW
7:00 AM	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0
7:30 AM	1	0	0	1	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0
8:00 AM	0	1	0	0	0	0	0	1
8:15 AM	1	0	0	0	0	0	1	0
8:30 AM	1	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0
	3		0		0		2	
4:00 PM	1	0	0	0	0	0	0	1
4:15 PM	0	1	0	0	0	0	1	0
4:30 PM	0	0	0	0	0	0	2	0
4:45 PM	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0
5:30 PM	1	0	0	0	0	0	2	0
5:45 PM	0	0	0	0	1	0	0	0
	1		0		0		2	

Study Name 02 RCW
Start Date 05/26/2016
Start Time 7:00 AM
Site Code PEDESTRIANS

	El Camino Real Southbound		Brewster Ave Westbound		El Camino Real Northbound		Brewster Ave Eastbound	
Start Time	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW
7:00 AM	0	0	2	0	0	0	1	1
7:15 AM	0	0	2	0	1	1	3	0
7:30 AM	0	1	0	1	2	3	2	0
7:45 AM	1	7	4	1	0	1	0	0
8:00 AM	5	2	1	0	0	1	4	1
8:15 AM	4	0	2	0	2	1	1	0
8:30 AM	5	1	4	5	2	4	2	1
8:45 AM	1	1	2	2	0	1	3	1
	25		17		11		9	
4:00 PM	0	1	4	10	3	0	1	0
4:15 PM	0	1	0	3	1	3	4	3
4:30 PM	2	2	4	4	1	0	0	1
4:45 PM	8	7	9	4	3	4	2	0
5:00 PM	0	3	0	3	1	1	2	1
5:15 PM	2	4	3	5	0	2	0	0
5:30 PM	3	0	6	3	2	1	0	1
5:45 PM	0	1	3	3	0	0	2	2
	27		33		14		6	

Study Name 03 RCW
Start Date 05/26/2016
Start Time 7:00 AM
Site Code ALL VEHICLES

AM

	El Camino Real Southbound						James Ave Westbound						El Camino Real Northbound						James Ave Eastbound						Total
Start Time	Left	Thru	Right	RTOR	U-Turn	Total	Left	Thru	Right	RTOR	U-Turn	Total	Left	Thru	Right	RTOR	U-Turn	Total	Left	Thru	Right	RTOR	U-Turn	Total	
7:00 AM	10	157	5	1	0	173	15	0	3	3	0	21	12	159	12	0	1	184	15	7	13	0	0	35	413
7:15 AM	11	249	10	0	0	270	15	8	11	1	0	35	15	219	34	4	1	273	17	16	17	0	0	50	628
7:30 AM	17	297	12	4	0	330	11	16	15	0	0	42	37	255	17	7	2	318	23	13	24	1	0	61	751
7:45 AM	18	249	28	1	0	296	6	14	11	0	0	31	53	310	7	1	2	373	36	24	47	0	0	107	807
8:00 AM	21	259	27	4	0	311	9	10	14	0	0	33	47	278	6	6	3	340	21	23	38	1	0	83	767
8:15 AM	16	264	29	0	0	309	16	19	10	7	0	52	62	254	20	1	2	339	28	27	41	1	0	97	797
8:30 AM	14	232	36	2	0	284	11	11	8	4	0	34	22	262	10	4	1	299	31	16	47	0	0	94	711
8:45 AM	23	285	14	4	0	326	12	14	13	0	0	39	16	260	9	1	3	289	22	13	23	0	0	58	712
total	130	1992	161	16	0	2299	95	92	85	15	0	287	264	1997	115	24	15	2415	193	139	250	3	0	585	5586

Peak Hour 730-830

	El Camino Real Southbound						James Ave Westbound						El Camino Real Northbound						James Ave Eastbound						Total
Start Time	Left	Thru	Right	RTOR	U-Turn	Total	Left	Thru	Right	RTOR	U-Turn	Total	Left	Thru	Right	RTOR	U-Turn	Total	Left	Thru	Right	RTOR	U-Turn	Total	
7:30 AM	17	297	12	4	0	330	11	16	15	0	0	42	37	255	17	7	2	318	23	13	24	1	0	61	751
7:45 AM	18	249	28	1	0	296	6	14	11	0	0	31	53	310	7	1	2	373	36	24	47	0	0	107	807
8:00 AM	21	259	27	4	0	311	9	10	14	0	0	33	47	278	6	6	3	340	21	23	38	1	0	83	767
8:15 AM	16	264	29	0	0	309	16	19	10	7	0	52	62	254	20	1	2	339	28	27	41	1	0	97	797
total	72	1069	96	9	0	1246	42	59	50	7	0	158	199	1097	50	15	9	1370	108	87	150	3	0	348	3122
% Heavy Veh	13%	3%	0%				26%	7%	14%				1%	4%	23%				1%	2%	1%				
phf																									**0.97**

PM

	El Camino Real Southbound						James Ave Westbound						El Camino Real Northbound						James Ave Eastbound						Total
Start Time	Left	Thru	Right	RTOR	U-Turn	Total	Left	Thru	Right	RTOR	U-Turn	Total	Left	Thru	Right	RTOR	U-Turn	Total	Left	Thru	Right	RTOR	U-Turn	Total	
4:00 PM	34	311	13	12	1	371	19	13	22	1	0	55	17	331	9	2	4	363	23	12	24	2	0	61	850
4:15 PM	36	291	21	5	0	353	31	14	8	3	0	56	14	357	10	2	4	387	10	9	16	0	0	35	831
4:30 PM	30	283	21	8	0	342	23	24	17	1	0	65	17	363	7	0	3	390	12	12	19	1	0	44	841
4:45 PM	28	276	11	4	0	319	31	15	20	0	0	66	9	361	9	2	5	386	15	15	17	0	0	47	818
5:00 PM	31	335	23	1	0	390	29	16	21	0	0	66	15	310	6	4	4	339	11	7	16	1	0	35	830
5:15 PM	40	329	20	0	0	389	24	20	25	1	1	71	23	342	8	3	2	378	13	9	15	1	0	38	876
5:30 PM	19	314	15	1	0	349	28	21	29	1	0	79	28	366	11	3	3	411	23	16	25	3	0	67	906
5:45 PM	24	274	15	1	0	314	22	13	16	8	0	59	23	335	14	1	4	377	19	17	27	0	0	63	813
total	242	2413	139	32	1	2827	207	136	158	15	1	517	146	2765	74	17	29	3031	126	97	159	8	0	390	6765

Peak Hour 445-545

	El Camino Real Southbound						James Ave Westbound						El Camino Real Northbound						James Ave Eastbound						Total
Start Time	Left	Thru	Right	RTOR	U-Turn	Total	Left	Thru	Right	RTOR	U-Turn	Total	Left	Thru	Right	RTOR	U-Turn	Total	Left	Thru	Right	RTOR	U-Turn	Total	
4:45 PM	28	276	11	4	0	319	31	15	20	0	0	66	9	361	9	2	5	386	15	15	17	0	0	47	818
5:00 PM	31	335	23	1	0	390	29	16	21	0	0	66	15	310	6	4	4	339	11	7	16	1	0	35	830
5:15 PM	40	329	20	0	0	389	24	20	25	1	1	71	23	342	8	3	2	378	13	9	15	1	0	38	876
5:30 PM	19	314	15	1	0	349	28	21	29	1	0	79	28	366	11	3	3	411	23	16	25	3	0	67	906
total	118	1254	69	6	0	1447	112	72	95	2	1	282	75	1379	34	12	14	1514	62	47	73	5	0	187	3430
% Heavy Veh	7%	1%	0%				12%	3%	8%				0%	1%	22%				0%	4%	0%				
phf																									**0.95**

Study Name 03 RCW
Start Date 05/26/2016
Start Time 7:00 AM
Site Code BICYCLES ON ROAD

	El Camino Real Southbound					James Ave Westbound					El Camino Real Northbound					James Ave Eastbound				
Start Time	Left	Thru	Right	Right on Re	U-Turn	Left	Thru	Right	Right on Re	U-Turn	Left	Thru	Right	Right on Re	U-Turn	Left	Thru	Right	Right on Re	U-Turn
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	2	0	0	0
7:15 AM	0	3	0	0	0	0	0	1	0	0	0	2	3	0	0	0	9	1	0	0
7:30 AM	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	3	0	0	0
7:45 AM	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0
8:00 AM	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2	0	0	0
8:15 AM	0	1	0	0	0	0	0	0	0	0	0	1	2	0	0	0	3	0	0	0
8:30 AM	0	1	0	0	0	0	0	0	0	0	0	3	1	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2	0	0	0
on crosswalk																				
Conflicting Mov	0	8	0	0	0	0	0	0	0	0	0	3	2	0	0	0	10	1	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	1	0	0	0
4:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
4:30 PM	0	1	0	0	0	0	1	0	0	0	0	1	1	0	0	0	1	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	2	0	0	0	1	1	0	0	0	0	1	0	0	0	0	1	0	0	0
5:30 PM	0	2	0	0	0	0	4	0	0	0	0	1	0	0	0	0	0	0	0	0
5:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	4	0	0	0	1	5	0	0	0	0	2	0	0	0	0	1	0	0	0
			0																	

Study Name 03 RCW
Start Date 05/26/2016
Start Time 7:00 AM
Site Code BICYCLES ON CROSSWALK

	El Camino Real Southbound		James Ave Westbound		El Camino Real Northbound		James Ave Eastbound	
Start Time	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW
7:00 AM	1	0	1	0	1	0	0	0
7:15 AM	0	0	0	0	2	0	0	0
7:30 AM	0	0	0	0	1	1	0	0
7:45 AM	2	0	0	0	0	1	0	0
8:00 AM	0	0	0	0	0	0	0	1
8:15 AM	3	0	0	0	1	0	0	0
8:30 AM	1	0	1	0	0	0	0	0
8:45 AM	0	0	1	0	0	0	0	0

North Leg	East Leg	South Leg	West Leg
5	0	4	1

9:00 AM	0	0	0	0	0	0	0	0
4:00 PM	1	2	1	0	0	0	0	2
4:15 PM	1	0	1	1	0	2	1	0
4:30 PM	3	0	0	0	2	0	0	0
4:45 PM	3	1	0	1	2	0	0	0
5:00 PM	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	2	1	0	0
5:30 PM	3	0	0	0	0	3	2	0
5:45 PM	0	0	0	0	0	1	0	0

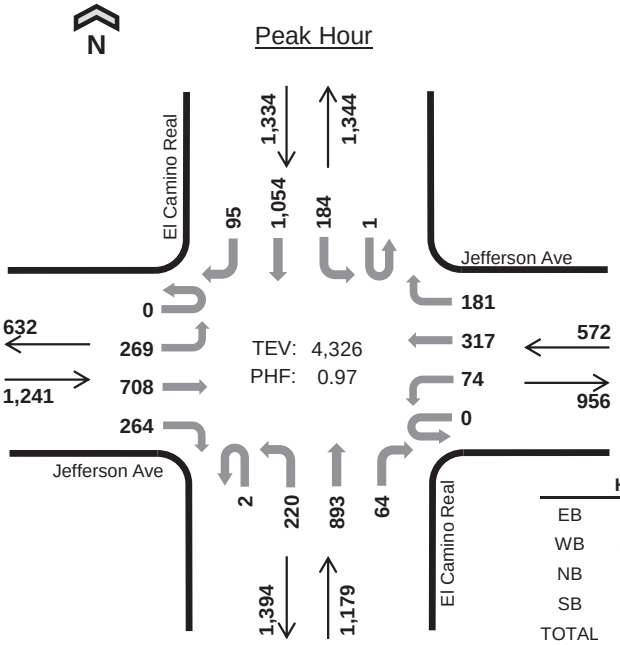
North Leg	East Leg	South Leg	West Leg
7	1	8	2

Study Name 03 RCW
Start Date 05/26/2016
Start Time 7:00 AM
Site Code PEDESTRIANS

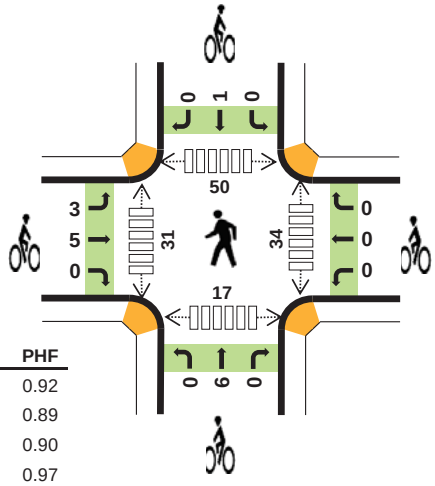
	El Camino Real Southbound		James Ave Westbound		El Camino Real Northbound		James Ave Eastbound	
Start Time	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW
7:00 AM	0	3	1	0	4	5	0	3
7:15 AM	6	9	4	1	6	1	0	0
7:30 AM	10	2	0	1	3	13	0	2
7:45 AM	21	0	1	0	2	13	0	2
8:00 AM	25	7	5	0	7	9	0	4
8:15 AM	50	9	9	1	18	18	0	5
8:30 AM	17	4	0	0	2	4	2	0
8:45 AM	7	2	0	1	3	2	0	0
9:00 AM	0	0	0	0	0	0	0	0
	North Leg		East Leg		South Leg		West Leg	
	124		17		83		13	
4:00 PM	2	27	2	8	5	12	1	2
4:15 PM	4	0	2	2	2	4	2	2
4:30 PM	13	2	4	2	4	4	0	2
4:45 PM	7	5	3	0	2	0	2	2
5:00 PM	4	9	1	1	1	6	6	0
5:15 PM	3	2	5	1	1	4	2	1
5:30 PM	9	2	3	6	10	8	1	1
5:45 PM	2	1	3	2	5	8	0	6
	North Leg		East Leg		South Leg		West Leg	
	41		20		32		15	

El Camino Real
Jefferson Ave

Date: 03/22/2016
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:45 AM to 8:45 AM



	HV %:	PHF
EB	1.5%	0.92
WB	4.7%	0.89
NB	3.3%	0.90
SB	3.1%	0.97
TOTAL	2.9%	0.97



Two-Hour Count Summaries

Interval Start	Jefferson Ave Eastbound				Jefferson Ave Westbound				El Camino Real Northbound				El Camino Real Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	33	64	32	0	15	31	16	0	13	112	2	0	17	152	13	500	0
7:15 AM	0	73	114	41	0	16	54	31	0	23	172	7	0	18	213	19	781	0
7:30 AM	0	71	133	51	0	11	85	30	0	29	205	9	0	33	247	27	931	0
7:45 AM	**0**	**64**	**154**	**51**	**0**	**7**	**113**	**41**	**0**	**68**	**245**	**16**	**0**	**45**	**257**	**24**	**1,085**	3,297
8:00 AM	**0**	**64**	**180**	**65**	**0**	**16**	**85**	**47**	**0**	**59**	**227**	**15**	**0**	**38**	**272**	**22**	**1,090**	3,887
8:15 AM	**0**	**70**	**189**	**65**	**0**	**27**	**62**	**64**	**1**	**64**	**223**	**20**	**0**	**45**	**254**	**32**	**1,116**	4,222
8:30 AM	**0**	**71**	**185**	**83**	**0**	**24**	**57**	**29**	**1**	**29**	**198**	**13**	**1**	**56**	**271**	**17**	**1,035**	**4,326**
8:45 AM	0	66	153	49	0	26	43	30	2	30	226	20	1	36	226	25	933	4,174
Count Total	0	512	1,172	437	0	142	530	288	4	315	1,608	102	2	288	1,892	179	7,471	0
Peak Hour All	**0**	**269**	**708**	**264**	**0**	**74**	**317**	**181**	**2**	**220**	**893**	**64**	**1**	**184**	**1,054**	**95**	**4,326**	**0**
Peak Hour HV	**0**	**8**	**7**	**3**	**0**	**5**	**12**	**10**	**0**	**7**	**32**	**0**	**0**	**12**	**28**	**1**	**125**	**0**
Peak Hour HV%	**-**	**3%**	**1%**	**1%**	**-**	**7%**	**4%**	**6%**	**0%**	**3%**	**4%**	**0%**	**0%**	**7%**	**3%**	**1%**	**3%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	1	5	9	10	*25*	1	1	2	1	*5*	5	5	7	2	*19*
7:15 AM	3	3	8	7	*21*	4	0	3	0	*7*	3	2	15	3	*23*
7:30 AM	6	3	10	16	*35*	2	0	5	0	*7*	5	9	27	2	*43*
7:45 AM	**1**	**6**	**10**	**10**	***27***	**0**	**0**	**2**	**0**	***2***	**4**	**6**	**9**	**1**	*20*
8:00 AM	**2**	**7**	**16**	**10**	***35***	**1**	**0**	**2**	**1**	***4***	**10**	**9**	**12**	**5**	*36*
8:15 AM	**5**	**5**	**5**	**10**	***25***	**5**	**0**	**1**	**0**	***6***	**9**	**9**	**20**	**4**	*42*
8:30 AM	**10**	**9**	**8**	**11**	***38***	**2**	**0**	**1**	**0**	***3***	**11**	**7**	**9**	**7**	***34***
8:45 AM	2	7	10	18	*37*	1	0	3	0	*4*	5	11	18	1	*35*
Count Total	30	45	76	92	*243*	16	1	19	2	*38*	52	58	117	25	*252*
Peak Hour	**18**	**27**	**39**	**41**	***125***	**8**	**0**	**6**	**1**	***15***	**34**	**31**	**50**	**17**	***132***

Deon Fouche: 415 - 757 - 7714 deon.fouche@idaxdata.com

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Jefferson Ave Eastbound				Jefferson Ave Westbound				El Camino Real Northbound				El Camino Real Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	1	0	2	1	2	0	0	9	0	0	2	8	0	25	0
7:15 AM	0	1	2	0	0	1	1	1	0	1	7	0	0	1	6	0	21	0
7:30 AM	0	1	2	3	0	1	0	2	0	2	6	2	0	2	12	2	35	0
7:45 AM	**0**	**1**	**0**	**0**	**0**	**0**	**4**	**2**	**0**	**1**	**9**	**0**	**0**	**3**	**7**	**0**	**27**	108
8:00 AM	**0**	**2**	**0**	**0**	**0**	**0**	**5**	**2**	**0**	**1**	**15**	**0**	**0**	**3**	**7**	**0**	**35**	118
8:15 AM	**0**	**1**	**3**	**1**	**0**	**2**	**1**	**2**	**0**	**1**	**4**	**0**	**0**	**3**	**6**	**1**	**25**	122
8:30 AM	**0**	**4**	**4**	**2**	**0**	**3**	**2**	**4**	**0**	**4**	**4**	**0**	**0**	**3**	**8**	**0**	**38**	**125**
8:45 AM	0	1	0	1	0	0	2	5	0	0	9	1	0	3	14	1	37	135
Count Total	0	11	11	8	0	9	16	20	0	10	63	3	0	20	68	4	243	0
Peak Hour	**0**	**8**	**7**	**3**	**0**	**5**	**12**	**10**	**0**	**7**	**32**	**0**	**0**	**12**	**28**	**1**	**125**	**0**

Two-Hour Count Summaries - Bikes

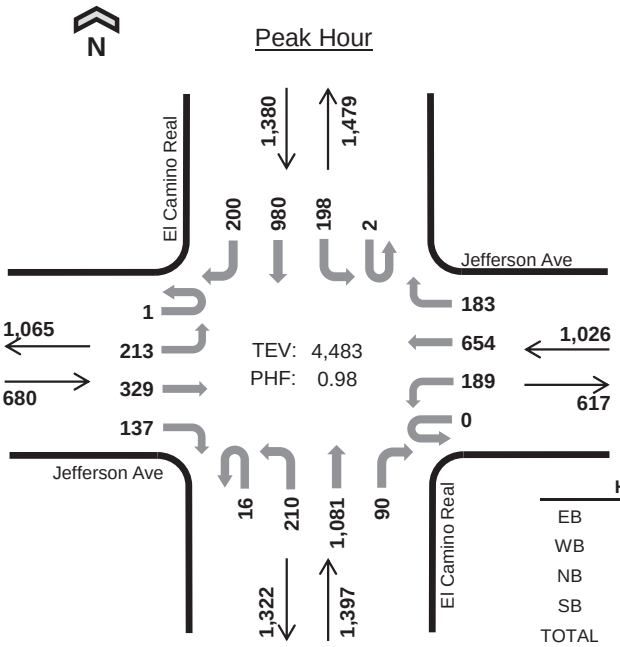
Interval Start	Jefferson Ave Eastbound			Jefferson Ave Westbound			El Camino Real Northbound			El Camino Real Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	1	0	0	0	1	0	0	2	0	0	1	0	5	0
7:15 AM	1	3	0	0	0	0	0	3	0	0	0	0	7	0
7:30 AM	1	1	0	0	0	0	0	5	0	0	0	0	7	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**2**	21
8:00 AM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**1**	**0**	**4**	20
8:15 AM	**3**	**2**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**6**	19
8:30 AM	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**3**	**15**
8:45 AM	0	1	0	0	0	0	0	3	0	0	0	0	4	17
Count Total	6	10	0	0	1	0	0	19	0	0	2	0	38	0
Peak Hour	**3**	**5**	**0**	**0**	**0**	**0**	**0**	**6**	**0**	**0**	**1**	**0**	**15**	**0**

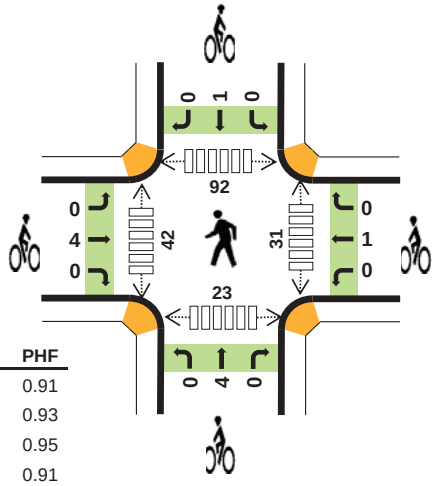
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Deon Fouche: 415 - 757 - 7714 deon.fouche@idaxdata.com

El Camino Real
Jefferson Ave

Date: 03/22/2016
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:45 PM to 5:45 PM





	HV %:	PHF
EB	0.7%	0.91
WB	1.0%	0.93
NB	1.4%	0.95
SB	1.4%	0.91
TOTAL	1.2%	0.98

Two-Hour Count Summaries

Interval Start	Jefferson Ave Eastbound				Jefferson Ave Westbound				El Camino Real Northbound				El Camino Real Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	57	97	52	0	47	113	40	2	59	265	26	0	46	258	46	1,108	0
4:15 PM	0	50	98	31	0	49	119	46	6	55	287	24	0	40	229	57	1,091	0
4:30 PM	0	58	92	31	0	55	125	45	5	47	273	40	0	40	253	46	1,110	0
4:45 PM	**1**	**45**	**83**	**32**	**0**	**59**	**148**	**38**	**6**	**45**	**260**	**29**	**1**	**52**	**277**	**49**	**1,125**	4,434
5:00 PM	**0**	**55**	**78**	**33**	**0**	**50**	**158**	**53**	**2**	**55**	**265**	**24**	**1**	**35**	**230**	**54**	**1,093**	4,419
5:15 PM	**0**	**58**	**88**	**41**	**0**	**49**	**185**	**43**	**4**	**49**	**268**	**21**	**0**	**49**	**246**	**46**	**1,147**	4,475
5:30 PM	**0**	**55**	**80**	**31**	**0**	**31**	**163**	**49**	**4**	**61**	**288**	**16**	**0**	**62**	**227**	**51**	**1,118**	**4,483**
5:45 PM	0	56	81	28	0	39	132	49	0	57	278	24	0	52	275	51	1,122	4,480
Count Total	1	434	697	279	0	379	1,143	363	29	428	2,184	204	2	376	1,995	400	8,914	0
Peak Hour All	**1**	**213**	**329**	**137**	**0**	**189**	**654**	**183**	**16**	**210**	**1,081**	**90**	**2**	**198**	**980**	**200**	**4,483**	**0**
Peak Hour HV	**0**	**1**	**4**	**0**	**0**	**1**	**4**	**5**	**0**	**1**	**17**	**2**	**0**	**7**	**11**	**1**	**54**	**0**
Peak Hour HV%	**0%**	**0%**	**1%**	**0%**	**-**	**1%**	**1%**	**3%**	**0%**	**0%**	**2%**	**2%**	**0%**	**4%**	**1%**	**1%**	**1%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	4	3	6	7	*20*	0	0	0	0	*0*	2	18	33	3	*56*
4:15 PM	2	4	4	5	*15*	0	0	0	0	*0*	11	10	19	8	*48*
4:30 PM	3	1	10	8	*22*	0	0	1	0	*1*	8	12	14	7	*41*
4:45 PM	**3**	**4**	**4**	**4**	***15***	**1**	**1**	**0**	**0**	***2***	**5**	**8**	**16**	**5**	*34*
5:00 PM	**1**	**2**	**9**	**6**	***18***	**2**	**0**	**3**	**1**	***6***	**7**	**7**	**17**	**13**	*44*
5:15 PM	**1**	**3**	**2**	**4**	***10***	**1**	**0**	**0**	**0**	***1***	**4**	**14**	**28**	**3**	*49*
5:30 PM	**0**	**1**	**5**	**5**	***11***	**0**	**0**	**1**	**0**	***1***	**15**	**13**	**31**	**2**	***61***
5:45 PM	1	3	2	4	*10*	0	4	1	0	*5*	9	10	21	6	*46*
Count Total	15	21	42	43	*121*	4	5	6	1	*16*	61	92	179	47	*379*
Peak Hour	**5**	**10**	**20**	**19**	***54***	**4**	**1**	**4**	**1**	***10***	**31**	**42**	**92**	**23**	***188***

Deon Fouche: 415 - 757 - 7714 deon.fouche@idaxdata.com

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Jefferson Ave Eastbound				Jefferson Ave Westbound				El Camino Real Northbound				El Camino Real Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	1	0	3	0	0	0	3	0	0	6	0	0	2	4	1	20	0
4:15 PM	0	0	2	0	0	0	1	3	0	0	3	1	0	1	4	0	15	0
4:30 PM	0	2	1	0	0	0	0	1	0	0	9	1	0	2	5	1	22	0
4:45 PM	**0**	**1**	**2**	**0**	**0**	**0**	**2**	**2**	**0**	**0**	**4**	**0**	**0**	**1**	**3**	**0**	**15**	72
5:00 PM	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**7**	**2**	**0**	**2**	**3**	**1**	**18**	70
5:15 PM	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**2**	**0**	**0**	**2**	**0**	**0**	**1**	**3**	**0**	**10**	65
5:30 PM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**4**	**0**	**0**	**3**	**2**	**0**	**11**	**54**
5:45 PM	0	0	0	1	0	0	0	3	0	0	2	0	0	0	4	0	10	49
Count Total	0	4	7	4	0	1	5	15	0	1	37	4	0	12	28	3	121	0
Peak Hour	**0**	**1**	**4**	**0**	**0**	**1**	**4**	**5**	**0**	**1**	**17**	**2**	**0**	**7**	**11**	**1**	**54**	**0**

Two-Hour Count Summaries - Bikes

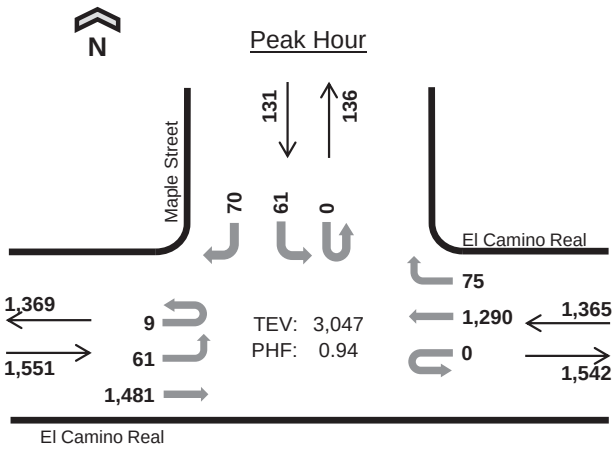
Interval Start	Jefferson Ave Eastbound			Jefferson Ave Westbound			El Camino Real Northbound			El Camino Real Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	1	0
4:45 PM	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	3
5:00 PM	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**1**	**0**	**6**	9
5:15 PM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	10
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**10**
5:45 PM	0	0	0	1	3	0	0	1	0	0	0	0	5	13
Count Total	0	4	0	1	4	0	0	6	0	0	1	0	16	0
Peak Hour	**0**	**4**	**0**	**0**	**1**	**0**	**0**	**4**	**0**	**0**	**1**	**0**	**10**	**0**

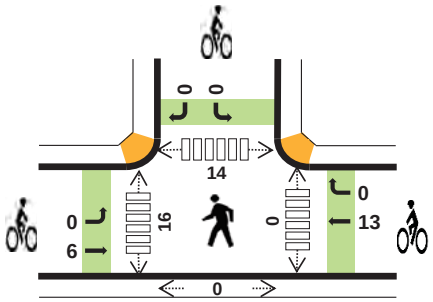
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Deon Fouche: 415 - 757 - 7714 deon.fouche@idaxdata.com

Maple Street
El Camino Real

Date: 01/27/2015
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:30 AM to 8:30 AM





	HV %:	PHF
EB	3.0%	0.96
WB	3.8%	0.90
NB	-	-
SB	1.5%	0.71
TOTAL	3.3%	0.94

Two-Hour Count Summaries

Interval Start		El Camino Real Eastbound				El Camino Real Westbound				0 Northbound				Maple Street Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		4	1	229	0	0	0	174	6	0	0	0	0	0	10	0	5	429	0
7:15 AM		1	5	328	0	0	0	206	17	0	0	0	0	0	4	0	4	565	0
7:30 AM		**6**	**12**	**386**	**0**	**0**	**0**	**295**	**12**	**0**	**0**	**0**	**0**	**0**	**18**	**0**	**12**	**741**	0
7:45 AM		**0**	**15**	**368**	**0**	**0**	**0**	**364**	**16**	**0**	**0**	**0**	**0**	**0**	**14**	**0**	**32**	**809**	2,544
8:00 AM		**1**	**14**	**362**	**0**	**0**	**0**	**301**	**23**	**0**	**0**	**0**	**0**	**0**	**12**	**0**	**11**	**724**	2,839
8:15 AM		**2**	**20**	**365**	**0**	**0**	**0**	**330**	**24**	**0**	**0**	**0**	**0**	**0**	**17**	**0**	**15**	**773**	**3,047**
8:30 AM		1	21	372	0	0	0	269	20	0	0	0	0	0	12	0	14	709	3,015
8:45 AM		6	10	291	0	0	0	241	26	0	0	0	0	0	15	0	13	602	2,808
Count Total		21	98	2,701	0	0	0	2,180	144	0	0	0	0	0	102	0	106	5,352	0
Peak Hour	**All**	**9**	**61**	**1,481**	**0**	**0**	**0**	**1,290**	**75**	**0**	**0**	**0**	**0**	**0**	**61**	**0**	**70**	**3,047**	**0**
	HV	**1**	**1**	**44**	**0**	**0**	**0**	**51**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**100**	**0**
	HV%	**11%**	**2%**	**3%**	**-**	**-**	**-**	**4%**	**1%**	**-**	**-**	**-**	**-**	**-**	**2%**	**-**	**1%**	**3%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	6	11	0	0	*17*	1	1	0	0	*2*	0	0	0	0	*0*
7:15 AM	11	11	0	0	*22*	1	4	0	1	*6*	0	5	0	0	*5*
7:30 AM	**12**	**14**	**0**	**0**	***26***	**2**	**3**	**0**	**0**	***5***	**0**	**1**	**2**	**0**	*3*
7:45 AM	**11**	**11**	**0**	**1**	***23***	**0**	**3**	**0**	**0**	***3***	**0**	**5**	**5**	**0**	*10*
8:00 AM	**16**	**11**	**0**	**1**	***28***	**1**	**3**	**0**	**0**	***4***	**0**	**2**	**3**	**0**	*5*
8:15 AM	**7**	**16**	**0**	**0**	***23***	**3**	**4**	**0**	**0**	***7***	**0**	**8**	**4**	**0**	***12***
8:30 AM	18	8	0	0	*26*	1	2	0	0	*3*	0	4	6	0	*10*
8:45 AM	13	12	0	2	*27*	3	3	0	1	*7*	0	8	4	0	*12*
Count Total	94	94	0	4	*192*	12	23	0	2	*37*	0	33	24	0	*57*
Peak Hr	**46**	**52**	**0**	**2**	***100***	**6**	**13**	**0**	**0**	***19***	**0**	**16**	**14**	**0**	***30***

Deon Fouche: 415 - 757 - 7714 deon.fouche@idaxdata.com

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	El Camino Real				El Camino Real				0				Maple Street				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	6	0	0	0	11	0	0	0	0	0	0	0	0	0	17	0
7:15 AM	0	0	11	0	0	0	11	0	0	0	0	0	0	0	0	0	22	0
7:30 AM	**1**	**0**	**11**	**0**	**0**	**0**	**13**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**26**	0
7:45 AM	**0**	**0**	**11**	**0**	**0**	**0**	**11**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**23**	88
8:00 AM	**0**	**0**	**16**	**0**	**0**	**0**	**11**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**28**	99
8:15 AM	**0**	**1**	**6**	**0**	**0**	**0**	**16**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**23**	**100**
8:30 AM	0	1	17	0	0	0	7	1	0	0	0	0	0	0	0	0	26	100
8:45 AM	0	0	13	0	0	0	12	0	0	0	0	0	0	0	0	2	27	104
Count Total	1	2	91	0	0	0	92	2	0	0	0	0	0	1	0	3	192	0
Peak Hour	**1**	**1**	**44**	**0**	**0**	**0**	**51**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**100**	**0**

Two-Hour Count Summaries - Bikes

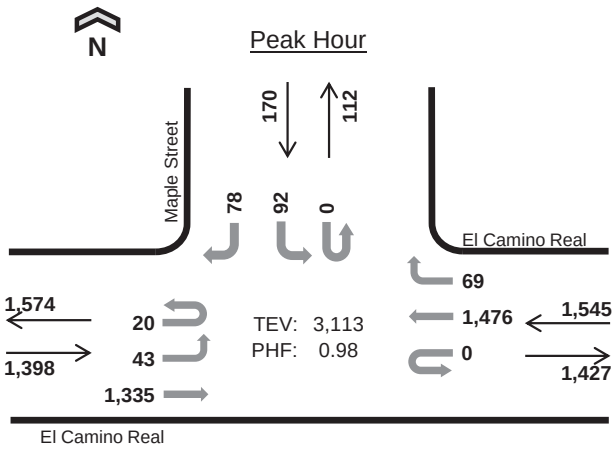
Interval Start	El Camino Real			El Camino Real			0			Maple Street			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	1	0	0	1	0	0	0	0	0	0	0	2	0
7:15 AM	0	1	0	0	4	0	0	0	0	1	0	0	6	0
7:30 AM	**0**	**2**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	0
7:45 AM	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	16
8:00 AM	**0**	**1**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	18
8:15 AM	**0**	**3**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**19**
8:30 AM	0	1	0	0	2	0	0	0	0	0	0	0	3	17
8:45 AM	1	2	0	0	2	1	0	0	0	1	0	0	7	21
Count Total	1	11	0	0	22	1	0	0	0	2	0	0	37	0
Peak Hour	**0**	**6**	**0**	**0**	**13**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**19**	**0**

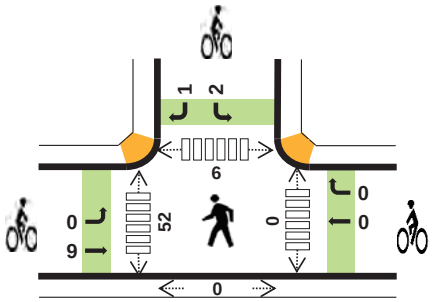
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Deon Fouche: 415 - 757 - 7714 deon.fouche@idaxdata.com

Maple Street
El Camino Real

Date: 01/27/2015
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 5:00 PM to 6:00 PM





	HV %:	PHF
EB	1.5%	0.96
WB	0.8%	0.98
NB	-	-
SB	0.0%	0.97
TOTAL	1.1%	0.98

Two-Hour Count Summaries

Interval Start		El Camino Real Eastbound				El Camino Real Westbound				0 Northbound				Maple Street Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		6	11	323	0	0	0	342	10	0	0	0	0	0	35	0	15	742	0
4:15 PM		5	14	312	0	0	0	319	14	0	0	0	0	0	39	0	26	729	0
4:30 PM		7	13	299	0	0	0	364	20	0	0	0	0	0	32	0	32	767	0
4:45 PM		5	10	321	0	0	0	357	13	0	0	0	0	0	34	0	22	762	3,000
5:00 PM		**6**	**9**	**349**	**0**	**0**	**0**	**371**	**17**	**0**	**0**	**0**	**0**	**0**	**21**	**0**	**19**	**792**	3,050
5:15 PM		**2**	**7**	**327**	**0**	**0**	**0**	**373**	**21**	**0**	**0**	**0**	**0**	**0**	**21**	**0**	**22**	**773**	3,094
5:30 PM		**7**	**17**	**317**	**0**	**0**	**0**	**362**	**17**	**0**	**0**	**0**	**0**	**0**	**21**	**0**	**22**	**763**	3,090
5:45 PM		**5**	**10**	**342**	**0**	**0**	**0**	**370**	**14**	**0**	**0**	**0**	**0**	**0**	**29**	**0**	**15**	**785**	**3,113**
Count Total		43	91	2,590	0	0	0	2,858	126	0	0	0	0	0	232	0	173	6,113	0
Peak Hour	**All**	**20**	**43**	**1,335**	**0**	**0**	**0**	**1,476**	**69**	**0**	**0**	**0**	**0**	**0**	**92**	**0**	**78**	**3,113**	**0**
	HV	**0**	**0**	**21**	**0**	**0**	**0**	**13**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**34**	**0**
	HV%	**0%**	**0%**	**2%**	**-**	**-**	**-**	**1%**	**0%**	**-**	**-**	**-**	**-**	**-**	**0%**	**-**	**0%**	**1%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	8	8	0	1	*17*	0	0	0	0	*0*	0	8	1	0	*9*
4:15 PM	2	5	0	0	*7*	2	0	0	0	*2*	0	13	2	0	*15*
4:30 PM	7	5	0	0	*12*	4	1	0	0	*5*	0	13	2	0	*15*
4:45 PM	4	4	0	0	*8*	0	4	0	0	*4*	0	10	1	0	*11*
5:00 PM	**4**	**4**	**0**	**0**	***8***	**3**	**0**	**0**	**1**	***4***	**0**	**15**	**3**	**0**	*18*
5:15 PM	**8**	**3**	**0**	**0**	***11***	**3**	**0**	**0**	**1**	***4***	**0**	**14**	**2**	**0**	*16*
5:30 PM	**5**	**3**	**0**	**0**	***8***	**1**	**0**	**0**	**1**	***2***	**0**	**13**	**1**	**0**	*14*
5:45 PM	**4**	**3**	**0**	**0**	***7***	**2**	**0**	**0**	**0**	***2***	**0**	**10**	**0**	**0**	***10***
Count Total	42	35	0	1	*78*	15	5	0	3	*23*	0	96	12	0	*108*
Peak Hr	**21**	**13**	**0**	**0**	***34***	**9**	**0**	**0**	**3**	***12***	**0**	**52**	**6**	**0**	***58***

Deon Fouche: 415 - 757 - 7714 deon.fouche@idaxdata.com

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	El Camino Real				El Camino Real				0				Maple Street				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	8	0	0	0	8	0	0	0	0	0	0	0	0	1	17	0
4:15 PM	0	0	2	0	0	0	5	0	0	0	0	0	0	0	0	0	7	0
4:30 PM	0	0	7	0	0	0	5	0	0	0	0	0	0	0	0	0	12	0
4:45 PM	0	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0	8	44
5:00 PM	**0**	**0**	**4**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8**	35
5:15 PM	**0**	**0**	**8**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**11**	39
5:30 PM	**0**	**0**	**5**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8**	35
5:45 PM	**0**	**0**	**4**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**34**
Count Total	0	0	42	0	0	0	35	0	0	0	0	0	0	0	0	1	78	0
Peak Hour	**0**	**0**	**21**	**0**	**0**	**0**	**13**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**34**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	El Camino Real			El Camino Real			0			Maple Street			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	2	0	0	0	0	0	0	0	0	0	0	2	0
4:30 PM	0	4	0	0	1	0	0	0	0	0	0	0	5	0
4:45 PM	0	0	0	0	4	0	0	0	0	0	0	0	4	11
5:00 PM	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**4**	15
5:15 PM	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**4**	17
5:30 PM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**2**	14
5:45 PM	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**12**
Count Total	0	15	0	0	5	0	0	0	0	2	0	1	23	0
Peak Hour	**0**	**9**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**1**	**12**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

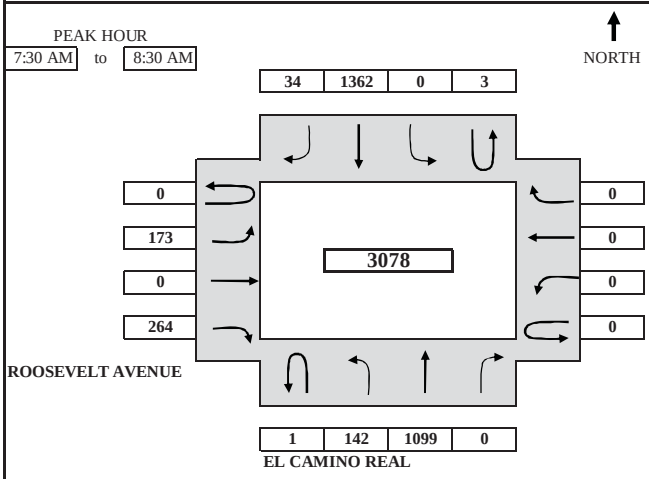
Deon Fouche: 415 - 757 - 7714 deon.fouche@idaxdata.com

B.A.Y.M.E.T.R.I.C.S.

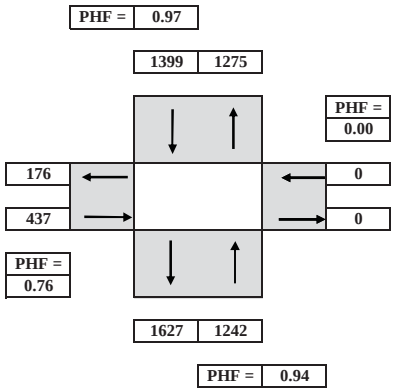
INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	**TRAFFIC COUNT IN MAIN STREET PROJECT**	**SURVEY DATE:**	**2/24/2015**	**DAY:**	**TUESDAY**
N-S APPROACH:	**EL CAMINO REAL**	**SURVEY TIME:**	**7:00 AM**	**TO**	**9:00 AM**
E-W APPROACH:	**ROOSEVELT AVENUE**	**JURISDICTION:**	**REDWOOD CITY**	**FILE:**	**3502026-1AM**

PEAK HOUR 7:30 AM to 8:30 AM



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD			NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
From		To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	
SURVEY DATA																			
7:00 AM	to	7:15 AM	0	23	158		0		215	6		27		40					**469**
7:15 AM	to	7:30 AM	0	43	382		0		521	13		69		92					**1120**
7:30 AM	to	7:45 AM	1	84	646		0		863	21		108		156					**1879**
7:45 AM	to	8:00 AM	1	124	935		0		1202	31		141		213					**2647**
8:00 AM	to	8:15 AM	1	150	1202		1		1534	39		179		275					**3381**
8:15 AM	to	8:30 AM	1	185	1481		3		1883	47		242		356					**4198**
8:30 AM	to	8:45 AM	1	222	1701		6		2242	51		280		413					**4916**
8:45 AM	to	9:00 AM	1	252	1940		9		2563	74		323		463					**5625**
TOTAL BY PERIOD																			
7:00 AM	to	7:15 AM	0	23	158	0	0	0	215	6	0	27	0	40	0	0	0	0	**469**
7:15 AM	to	7:30 AM	0	20	224	0	0	0	306	7	0	42	0	52	0	0	0	0	**651**
7:30 AM	to	7:45 AM	1	41	264	0	0	0	342	8	0	39	0	64	0	0	0	0	**759**
7:45 AM	to	8:00 AM	0	40	289	0	0	0	339	10	0	33	0	57	0	0	0	0	**768**
8:00 AM	to	8:15 AM	0	26	267	0	1	0	332	8	0	38	0	62	0	0	0	0	**734**
8:15 AM	to	8:30 AM	0	35	279	0	2	0	349	8	0	63	0	81	0	0	0	0	**817**
8:30 AM	to	8:45 AM	0	37	220	0	3	0	359	4	0	38	0	57	0	0	0	0	**718**
8:45 AM	to	9:00 AM	0	30	239	0	3	0	321	23	0	43	0	50	0	0	0	0	**709**
HOURLY TOTALS																			
7:00 AM	to	8:00 AM	1	124	935	0	0	0	1202	31	0	141	0	213	0	0	0	0	**2647**
7:15 AM	to	8:15 AM	1	127	1044	0	1	0	1319	33	0	152	0	235	0	0	0	0	**2912**
7:30 AM	to	8:30 AM	1	142	1099	0	3	0	1362	34	0	173	0	264	0	0	0	0	**3078**
7:45 AM	to	8:45 AM	0	138	1055	0	6	0	1379	30	0	172	0	257	0	0	0	0	**3037**
8:00 AM	to	9:00 AM	0	128	1005	0	9	0	1361	43	0	182	0	250	0	0	0	0	**2978**

PEAK HOUR SUMMARY

7:30 AM to 8:30 AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	
VOLUME	1	142	1099	0	3	0	1362	34	0	173	0	264	0	0	0	0	**3078**
PHF BY MOVEMENT	0.25	0.87	0.95	0.00	0.38	0.00	0.98	0.85	0.00	0.69	0.00	0.81	0.00	0.00	0.00	0.00	OVERALL
PHF BY APPROACH	0.94				0.97				0.76				0.00				**0.94**
PED (Inc JAY-WALK)	18				23				66				31				**138**
BICYCLE	4				0				6				0				**10**

TEL: (510) 232 - 1271 FAX: (510) 232 - 1272

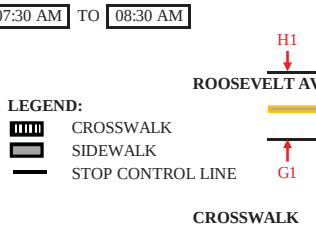
B.A.Y.M.E.T.R.I.C.S.

PEDESTRIAN & BICYCLE MOVEMENT SUMMARY

PROJECT:	TRAFFIC COUNT IN MAIN STREET PROJECT	**SURVEY DATE:**	2/24/2015	**DAY:**	TUESDAY
N-S APPROACH:	EL CAMINO REAL	**SURVEY PERIOD**	7:00 AM	to	9:00 AM
E-W APPROACH:	ROOSEVELT AVENUE	**JURISDICTION:**	REDWOOD CITY	**FILE:**	3502026-1AM

PEAK HOUR SUMMARY

PEAK HOUR: 07:30 AM TO 08:30 AM



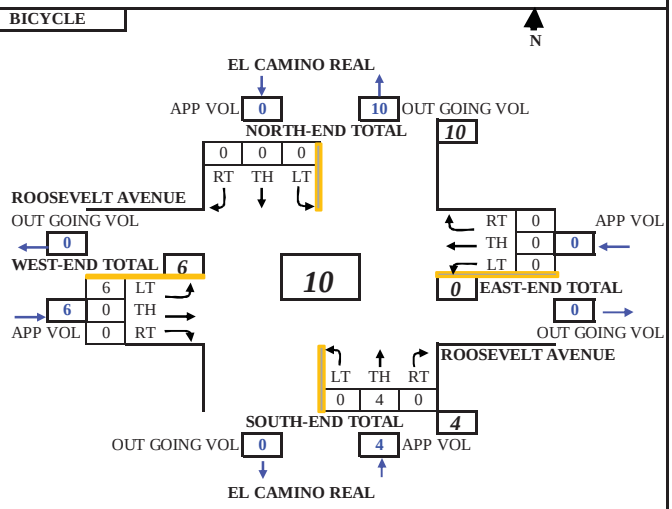
CROSSWALK

A	B	BY LEG N-END	BY DIR NB(D+G)	BY DIR NB(D1+G1)	BY LEG N-END	A1	B1
0	0	**0**	**18**	**0**	**0**	0	0
C	D	E-END	SB(C+H)	SB(C1+H1)	E-END	C1	D1
0	0	**0**	**23**	**0**	**0**	0	0
E	F	S-END	EB(A+F)	EB(A1+F1)	S-END	E1	F1
31	66	**97**	**66**	**0**	**0**	0	0
G	H	W-END	WB(B+E)	WB(B1+E1)	W-END	G1	H1
18	23	**41**	**31**	**0**	**0**	0	0

JAY-WALK (in RED)

TOTAL PEDESTIAN: 138 — TOTAL JAY-WALK: 0

TOTAL PEDESTIAN (Inclded JAY-WALK): *138*



TIME From	TIME To	PEDESTRIAN @ CROSSWALK / STOP LINE N-END A	B	E-END C	D	S-END E	F	W-END G	H	TOTAL	JAY-WALK (From Intersection to Midblock) N-END A1	B1	E-END C1	D1	S-END E1	F1	W-END G1	H1	TOTAL	BICYCLE NB SOUTH-END LT	TH	RT	SB NORTH-END LT	TH	RT	EB WEST-END LT	TH	RT	WB EAST-END LT	TH	RT	TOTAL	OVER ALL TOTAL
SURVEY DATA																																
07:00 AM	07:15 AM	0	0	0	0	4	10	3	2		0	0	0	0	0	0	0	0		0	0	0	0	4	0	1	0	0	0	0	0	*24*
07:15 AM	07:30 AM	0	0	0	0	14	25	16	10		0	0	0	0	0	0	0	0		0	2	0	0	5	0	2	0	0	0	0	0	0	*74*
07:30 AM	07:45 AM	0	0	0	0	23	47	20	17		0	0	0	0	0	0	0	0		0	3	0	0	5	0	3	0	0	0	0	0	0	*118*
07:45 AM	08:00 AM	0	0	0	0	33	67	26	25		0	0	0	0	0	0	0	0		0	3	0	0	5	0	4	0	0	0	0	0	0	*163*
08:00 AM	08:15 AM	0	0	0	0	42	80	28	28		0	0	0	0	0	0	0	0		0	4	0	0	5	0	5	0	0	0	0	0	0	*192*
08:15 AM	08:30 AM	0	0	0	0	45	91	34	33		0	0	0	0	0	0	0	0		0	6	0	0	5	0	8	0	0	0	0	0	0	*222*
08:30 AM	08:45 AM	0	0	0	0	49	101	35	37		0	0	0	0	0	1	0		0	11	0	0	8	0	9	0	0	0	0	0	0	*251*
08:45 AM	09:00 AM	0	0	0	0	51	106	36	39		0	0	0	0	0	1	0		0	12	0	0	8	0	9	0	0	0	0	0	0	*262*
TOTAL BY PERIOD																																
07:00 AM	07:15 AM	0	0	0	0	4	10	3	2	19	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	1	0	0	0	0	0	5	*24*
07:15 AM	07:30 AM	0	0	0	0	10	15	13	8	46	0	0	0	0	0	0	0	0	0	0	2	0	0	1	0	1	0	0	0	0	0	4	*50*
07:30 AM	07:45 AM	0	0	0	0	9	22	4	7	42	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	2	*44*
07:45 AM	08:00 AM	0	0	0	0	10	20	6	8	44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	*45*
08:00 AM	08:15 AM	0	0	0	0	9	13	2	3	27	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	2	*29*
08:15 AM	08:30 AM	0	0	0	0	3	11	6	5	25	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	3	0	0	0	0	0	5	*30*
08:30 AM	08:45 AM	0	0	0	0	4	10	1	4	19	0	0	0	0	0	0	1	0	1	0	5	0	0	3	0	1	0	0	0	0	0	9	*29*
08:45 AM	09:00 AM	0	0	0	0	2	5	1	2	10	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	***11***
HOURLY TOTALS																																
07:00 AM	08:00 AM	0	0	0	0	33	67	26	25	151	0	0	0	0	0	0	0	0	0	0	3	0	0	5	0	4	0	0	0	0	0	12	***163***
07:15 AM	08:15 AM	0	0	0	0	38	70	25	26	159	0	0	0	0	0	0	0	0	0	0	4	0	0	1	0	4	0	0	0	0	0	9	***168***
07:30 AM	08:30 AM	0	0	0	0	31	66	18	23	138	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	6	0	0	0	0	0	10	***148***
07:45 AM	08:45 AM	0	0	0	0	26	54	15	20	115	0	0	0	0	0	1	0	1	0	1	8	0	0	3	0	6	0	0	0	0	0	17	***133***
08:00 AM	09:00 AM	0	0	0	0	18	39	10	14	81	0	0	0	0	0	1	0	1	0	1	9	0	0	3	0	5	0	0	0	0	0	17	***99***

SUMMARY (HOURLY COUNT)

TIME From	TIME To	PEDESTRIAN COUNTS BY DIRECTION NB(D+G)	SB(C+H)	EB(A+F)	WB(B+E)	TOTAL	PEDESTRIAN COUNTS (INCLUDED JAY-WALK) NB(D+G)	SB(C+H)	EB(A+F)	WB(B+E)	TOTAL	BICYCLE COUNTS NB	SB	EB	WB	TOTAL
07:00 AM	08:00 AM	26	25	67	33	**151**	26	25	67	33	***151***	3	5	4	0	***12***
07:15 AM	08:15 AM	25	26	70	38	**159**	25	26	70	38	***159***	4	1	4	0	***9***
07:30 AM	08:30 AM	18	23	66	31	**138**	18	23	66	31	***138***	4	0	6	0	***10***
07:45 AM	08:45 AM	15	20	54	26	**115**	16	20	54	26	***116***	8	3	6	0	***17***
08:00 AM	09:00 AM	10	14	39	18	**81**	11	14	39	18	***82***	9	3	5	0	***17***

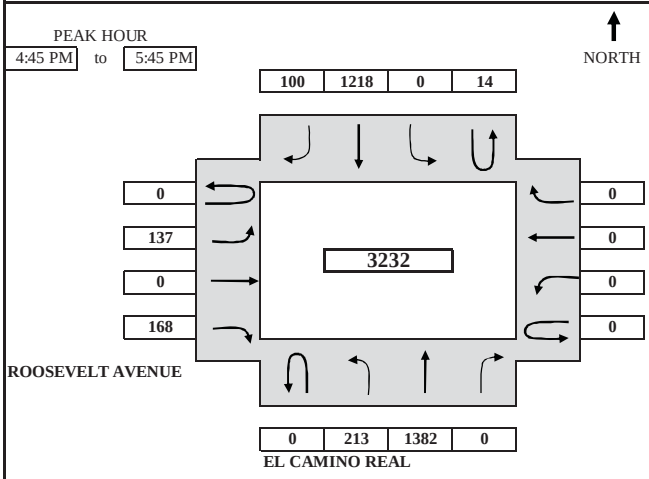
Tel : (510) 232-1271 ***Fax: (510) 232-1272***

B.A.Y.M.E.T.R.I.C.S.

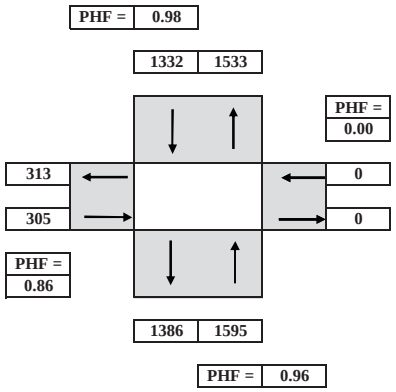
INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	**TRAFFIC COUNT IN MAIN STREET PROJECT**	**SURVEY DATE:**	**2/24/2015**	**DAY:**	**TUESDAY**
N-S APPROACH:	**EL CAMINO REAL**	**SURVEY TIME:**	**4:00 PM**	**TO**	**6:00 PM**
E-W APPROACH:	**ROOSEVELT AVENUE**	**JURISDICTION:**	**REDWOOD CITY**	**FILE:**	**3502026-1PM**

PEAK HOUR 4:45 PM to 5:45 PM



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD			NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
From		To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	
SURVEY DATA																			
4:00 PM	to	4:15 PM		39	345		4		333	27		20		49					**817**
4:15 PM	to	4:30 PM		87	654		5		642	57		50		96					**1591**
4:30 PM	to	4:45 PM		126	966		6		948	73		82		132					**2333**
4:45 PM	to	5:00 PM		180	1329		9		1267	90		117		164					**3156**
5:00 PM	to	5:15 PM		231	1681		11		1570	115		145		206					**3959**
5:15 PM	to	5:30 PM		281	2021		15		1875	142		186		254					**4774**
5:30 PM	to	5:45 PM		339	2348		20		2166	173		219		300					**5565**
5:45 PM	to	6:00 PM		404	2671		27		2442	206		251		346					**6347**
TOTAL BY PERIOD																			
4:00 PM	to	4:15 PM	0	39	345	0	4	0	333	27	0	20	0	49	0	0	0	0	**817**
4:15 PM	to	4:30 PM	0	48	309	0	1	0	309	30	0	30	0	47	0	0	0	0	**774**
4:30 PM	to	4:45 PM	0	39	312	0	1	0	306	16	0	32	0	36	0	0	0	0	**742**
4:45 PM	to	5:00 PM	0	54	363	0	3	0	319	17	0	35	0	32	0	0	0	0	**823**
5:00 PM	to	5:15 PM	0	51	352	0	2	0	303	25	0	28	0	42	0	0	0	0	**803**
5:15 PM	to	5:30 PM	0	50	340	0	4	0	305	27	0	41	0	48	0	0	0	0	**815**
5:30 PM	to	5:45 PM	0	58	327	0	5	0	291	31	0	33	0	46	0	0	0	0	**791**
5:45 PM	to	6:00 PM	0	65	323	0	7	0	276	33	0	32	0	46	0	0	0	0	**782**
HOURLY TOTALS																			
4:00 PM	to	5:00 PM	0	180	1329	0	9	0	1267	90	0	117	0	164	0	0	0	0	**3156**
4:15 PM	to	5:15 PM	0	192	1336	0	7	0	1237	88	0	125	0	157	0	0	0	0	**3142**
4:30 PM	to	5:30 PM	0	194	1367	0	10	0	1233	85	0	136	0	158	0	0	0	0	**3183**
4:45 PM	to	5:45 PM	0	213	1382	0	14	0	1218	100	0	137	0	168	0	0	0	0	**3232**
5:00 PM	to	6:00 PM	0	224	1342	0	18	0	1175	116	0	134	0	182	0	0	0	0	**3191**

PEAK HOUR SUMMARY

4:45 PM to 5:45 PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	
VOLUME	0	213	1382	0	14	0	1218	100	0	137	0	168	0	0	0	0	**3232**
PHF BY MOVEMENT	0.00	0.92	0.95	0.00	0.70	0.00	0.95	0.81	0.00	0.84	0.00	0.88	0.00	0.00	0.00	0.00	OVERALL
PHF BY APPROACH	0.96				0.98				0.86				0.00				**0.98**
PED (Inc JAY-WALK)	23				47				19				38				**127**
BICYCLE	9				7				1				0				**17**

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B.A.Y.M.E.T.R.I.C.S.

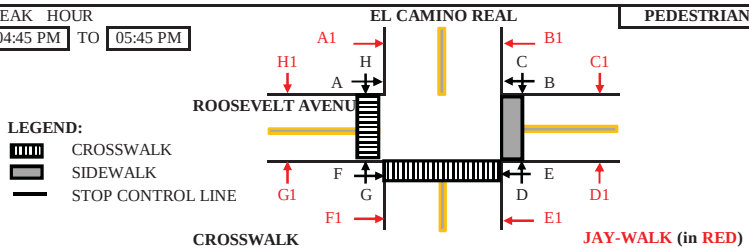
PEDESTRIAN & BICYCLE MOVEMENT SUMMARY

PROJECT:	TRAFFIC COUNT IN MAIN STREET PROJECT	**SURVEY DATE:**	2/24/2015	**DAY:**	TUESDAY
N-S APPROACH:	EL CAMINO REAL	**SURVEY PERIOD**	4:00 PM	to	6:00 PM
E-W APPROACH:	ROOSEVELT AVENUE	**JURISDICTION:**	REDWOOD CITY	**FILE:**	=S6

PEAK HOUR SUMMARY

PEAK HOUR: 04:45 PM TO 05:45 PM

PEDESTRIAN



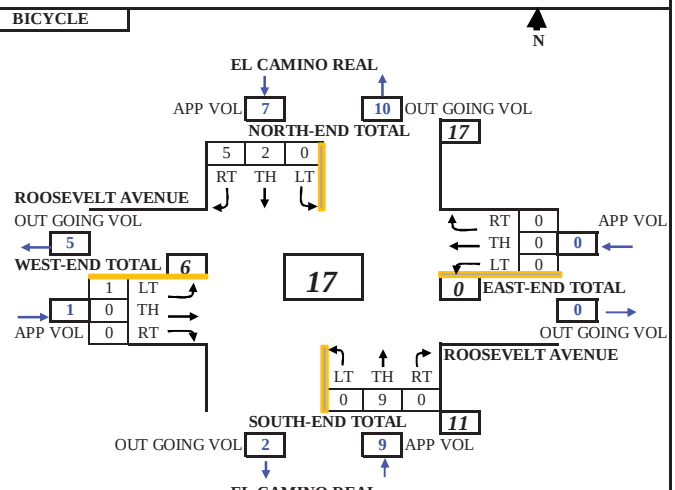
CROSSWALK — **JAY-WALK (in RED)**

A	B	BY LEG N-END	BY DIR NB(D+G)	BY DIR NB(D1+G1)	BY LEG N-END	A1	B1
0	0	0	23	0	0	0	0
C	D	E-END	SB(C+H)	SB(C1+H1)	E-END	C1	D1
0	0	0	47	0	0	0	0
E	F	S-END	EB(A+F)	EB(A1+F1)	S-END	E1	F1
38	19	57	19	0	0	0	0
G	H	W-END	WB(B+E)	WB(B1+E1)	W-END	G1	H1
23	47	70	38	0	0	0	0

TOTAL PEDESTIAN: 127 — TOTAL JAY-WALK: 0

TOTAL PEDESTIAN (Inclded JAY-WALK): 127

BICYCLE



TIME From	To	PEDESTRIAN @ CROSSWALK / STOP LINE N-END A	B	E-END C	D	S-END E	F	W-END G	H	TOTAL	JAY-WALK N-END A1	B1	E-END C1	D1	S-END E1	F1	W-END G1	H1	TOTAL	BICYCLE NB SOUTH-END LT	TH	RT	SB NORTH-END LT	TH	RT	EB WEST-END LT	TH	RT	WB EAST-END LT	TH	RT	TOTAL	OVER ALL TOTAL
SURVEY DATA																																	
04:00 PM	04:15 PM	0	0	0	0	2	12	5	9		0	0	0	0	0	0	0	0		0	0	0	0	7	0	1	0	0	0	0	0		36
04:15 PM	04:30 PM	0	0	0	0	11	24	11	13		0	0	0	0	0	0	0	0		0	2	0	0	9	0	1	0	0	0	0	0		71
04:30 PM	04:45 PM	0	0	0	0	19	32	16	22		0	0	0	0	0	0	0	0		0	2	0	0	9	0	1	0	0	0	0	0		101
04:45 PM	05:00 PM	0	0	0	0	28	36	22	50		0	0	0	0	0	0	0	0		0	8	0	0	9	0	1	0	0	0	0	0		154
05:00 PM	05:15 PM	0	0	0	0	41	42	28	56		0	0	0	0	0	0	0	0		0	10	0	0	11	0	2	0	0	0	0	0		190
05:15 PM	05:30 PM	0	0	0	0	51	47	33	59		0	0	0	0	0	0	0	0		0	10	0	0	11	1	2	0	0	0	0	0		214
05:30 PM	05:45 PM	0	0	0	0	57	51	39	69		0	0	0	0	0	0	0	0		0	11	0	0	11	5	2	0	0	0	0	0		245
05:45 PM	06:00 PM	0	0	0	0	66	57	50	77		0	0	0	0	0	0	0	0		0	15	0	0	12	5	2	0	0	0	0	0		284
TOTAL BY PERIOD																																	
04:00 PM	04:15 PM	0	0	0	0	2	12	5	9	28	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	1	0	0	0	0	0	8	36
04:15 PM	04:30 PM	0	0	0	0	9	12	6	4	31	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	4	35
04:30 PM	04:45 PM	0	0	0	0	8	8	5	9	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30
04:45 PM	05:00 PM	0	0	0	0	9	4	6	28	47	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	6	53
05:00 PM	05:15 PM	0	0	0	0	13	6	6	6	31	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	1	0	0	0	0	0	5	36
05:15 PM	05:30 PM	0	0	0	0	10	5	5	3	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	24
05:30 PM	05:45 PM	0	0	0	0	6	4	6	10	26	0	0	0	0	0	0	0	0	0	0	1	0	0	0	4	0	0	0	0	0	0	5	31
05:45 PM	06:00 PM	0	0	0	0	9	6	11	8	34	0	0	0	0	0	0	0	0	0	0	4	0	0	1	0	0	0	0	0	0	0	5	39
HOURLY TOTALS																																	
04:00 PM	05:00 PM	0	0	0	0	28	36	22	50	136	0	0	0	0	0	0	0	0	0	0	8	0	0	9	0	1	0	0	0	0	0	18	154
04:15 PM	05:15 PM	0	0	0	0	39	30	23	47	139	0	0	0	0	0	0	0	0	0	0	10	0	0	4	0	1	0	0	0	0	0	15	154
04:30 PM	05:30 PM	0	0	0	0	40	23	22	46	131	0	0	0	0	0	0	0	0	0	0	8	0	0	2	1	1	0	0	0	0	0	12	143
04:45 PM	05:45 PM	0	0	0	0	38	19	23	47	127	0	0	0	0	0	0	0	0	0	0	9	0	0	2	5	1	0	0	0	0	0	17	144
05:00 PM	06:00 PM	0	0	0	0	38	21	28	27	114	0	0	0	0	0	0	0	0	0	0	7	0	0	3	5	1	0	0	0	0	0	16	130

SUMMARY (HOURLY COUNT)

TIME From	To	PEDESTRIAN COUNTS BY DIRECTION NB(D+G)	SB(C+H)	EB(A+F)	WB(B+E)	TOTAL	PEDESTRIAN COUNTS (INCLUDED JAY-WALK) NB(D+G)	SB(C+H)	EB(A+F)	WB(B+E)	TOTAL	BICYCLE COUNTS NB	SB	EB	WB	TOTAL
04:00 PM	05:00 PM	22	50	36	28	136	22	50	36	28	136	8	9	1	0	18
04:15 PM	05:15 PM	23	47	30	39	139	23	47	30	39	139	10	4	1	0	15
04:30 PM	05:30 PM	22	46	23	40	131	22	46	23	40	131	8	3	1	0	12
04:45 PM	05:45 PM	23	47	19	38	127	23	47	19	38	127	9	7	1	0	17
05:00 PM	06:00 PM	28	27	21	38	114	28	27	21	38	114	7	8	1	0	16

Tel : (510) 232-1271 *Fax: (510) 232-1272*

Study Name 04 RCW
Start Date 05/26/2016
Start Time 7:00 AM
Site Code ALL VEHICLES

AM

	El Camino Real Southbound					El Camino Real Northbound				Oak Ave Eastbound					Total
Start Time	Thru	Right	RTOR	U-Turn	Total	Left	Thru	U-Turn	Total	Left	Right	RTOR	U-Turn	Total	
7:00 AM	240	10	0	2	252	17	119	1	391	19	16	2	0	428	1071
7:15 AM	340	12	1	0	353	21	174	5	553	31	16	3	0	603	1509
7:30 AM	407	11	6	2	426	30	204	5	667	40	30	0	0	737	1830
7:45 AM	430	3	3	0	436	36	246	15	733	33	21	1	0	788	1957
8:00 AM	403	11	3	3	420	19	233	12	687	45	21	0	0	753	1860
8:15 AM	453	9	3	4	469	22	230	14	739	35	17	0	0	791	1999
8:30 AM	407	11	0	2	420	13	200	2	637	36	18	0	0	691	1748
8:45 AM	423	5	1	2	431	11	185	11	640	38	21	2	0	701	1772
	3103	72	17	15	3207	169	1591	65	5047	277	160	8	0	5492	13746

Peak Hour 730-830

	El Camino Real Southbound					El Camino Real Northbound				Oak Ave Eastbound					Total
Start Time	Thru	Right	RTOR	U-Turn	Total	Left	Thru	U-Turn	Total	Left	Right	RTOR	U-Turn	Total	
7:30 AM	407	11	6	2	426	30	204	5	667	40	30	0	0	737	1830
7:45 AM	430	3	3	0	436	36	246	15	733	33	21	1	0	788	1957
8:00 AM	403	11	3	3	420	19	233	12	687	45	21	0	0	753	1860
8:15 AM	453	9	3	4	469	22	230	14	739	35	17	0	0	791	1999
total	1693	34	15	9	1751	107	913	46	2826	153	89	1	0	3069	7646
% Heavy Veh	3%	2%				0%	4%			0%	2%				
phf															**0.96**

PM

	El Camino Real Southbound					El Camino Real Northbound				Oak Ave Eastbound					Total
Start Time	Thru	Right	RTOR	U-Turn	Total	Left	Thru	U-Turn	Total	Left	Right	RTOR	U-Turn	Total	
4:00 PM	369	10	5	1	385	23	313	20	741	28	13	5	0	46	1172
4:15 PM	388	15	2	11	416	27	313	21	777	29	13	4	0	46	1239
4:30 PM	346	20	2	10	378	30	353	16	777	27	15	4	0	46	1201
4:45 PM	383	21	0	5	409	36	334	14	793	37	16	1	0	54	1256
5:00 PM	391	20	9	2	422	32	333	14	801	24	12	4	0	40	1263
5:15 PM	410	10	8	8	436	43	275	17	771	35	13	2	0	50	1257
5:30 PM	371	20	4	5	400	51	351	17	819	30	23	4	0	57	1276
5:45 PM	381	18	5	3	407	41	324	18	790	22	14	5	0	41	1238
	3039	134	35	45	3253	283	2596	137	6269	232	119	29	0	380	9902

Peak Hour 445-545

	El Camino Real Southbound					El Camino Real Northbound				Oak Ave Eastbound					Total
Start Time	Thru	Right	RTOR	U-Turn	Total	Left	Thru	U-Turn	Total	Left	Right	RTOR	U-Turn	Total	
4:45 PM	383	21	0	5	409	36	334	14	793	37	16	1	0	54	1256
5:00 PM	391	20	9	2	422	32	333	14	801	24	12	4	0	40	1263
5:15 PM	410	10	8	8	436	43	275	17	771	35	13	2	0	50	1257
5:30 PM	371	20	4	5	400	51	351	17	819	30	23	4	0	57	1276
total	1555	71	21	20	1667	162	1293	62	3184	126	64	11	0	201	5052
% Heavy Veh	1.0%	0.0%				0.0%	1.5%			0.0%	1.3%				
phf															**0.99**

Study Name 04 RCW
Start Date 05/26/2016
Start Time 7:00 AM
Site Code BICYCLES ON ROAD

	El Camino Real Southbound				El Camino Real Northbound			Oak Ave Eastbound			
Start Time	Thru	Right	Right on Re	U-Turn	Left	Thru	U-Turn	Left	Right	Right on Re	U-Turn
7:00 AM	0	0	0	0	0	1	0	0	0	0	0
7:15 AM	1	0	0	0	0	5	0	2	0	0	0
7:30 AM	0	0	0	0	0	0	0	1	0	0	0
7:45 AM	3	0	0	0	0	1	0	1	0	0	0
8:00 AM	3	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	2	0	0	0	0	0
8:30 AM	1	0	1	0	0	5	0	1	0	0	0
8:45 AM	1	0	0	0	0	0	0	2	0	0	0
		0				0			0		
4:00 PM	3	1	0	0	0	1	0	3	0	0	0
4:15 PM	1	0	0	0	1	0	0	1	0	0	0
4:30 PM	2	1	1	0	0	0	0	1	0	0	0
4:45 PM	1	0	0	0	1	0	0	2	0	0	0
5:00 PM	0	0	0	0	0	0	0	2	0	0	0
5:15 PM	0	0	0	0	0	1	0	2	0	0	0
5:30 PM	2	0	0	0	0	3	0	3	0	0	0
5:45 PM	1	0	0	0	0	2	0	1	0	0	0

Study Name 04 RCW
Start Date 05/26/2016
Start Time 7:00 AM
Site Code BICYCLES ON CROSSWALK

	El Camino Real Southbound		El Camino Real Northbound		Oak Ave Eastbound	
Start Time	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW
7:00 AM	1	0	0	1	0	0
7:15 AM	0	0	0	1	0	0
7:30 AM	0	0	0	0	0	0
7:45 AM	0	0	0	1	1	0
8:00 AM	0	0	0	0	0	0
8:15 AM	0	0	3	1	0	0
8:30 AM	0	0	1	0	0	0
8:45 AM	0	0	0	2	1	0
	North leg		South Leg		West Leg	
	0		5		1	
4:00 PM	0	0	0	3	0	1
4:15 PM	1	0	1	0	0	1
4:30 PM	1	0	1	0	0	1
4:45 PM	1	0	1	1	1	0
5:00 PM	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0
5:30 PM	0	0	0	2	1	0
5:45 PM	1	1	0	0	0	1
	North leg		South Leg		West Leg	
	1		4		2	

Study Name 04 RCW
Start Date 05/26/2016
Start Time 7:00 AM
Site Code PEDESTRIANS

	El Camino Real Southbound		El Camino Real Northbound		Oak Ave Eastbound	
Start Time	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW
7:00 AM	1	1	0	2	2	7
7:15 AM	4	1	1	6	2	2
7:30 AM	5	1	2	9	9	2
7:45 AM	1	0	1	2	1	6
8:00 AM	2	0	1	6	5	2
8:15 AM	2	3	1	4	2	6
8:30 AM	0	1	2	2	1	3
8:45 AM	3	1	3	3	1	2
	North Leg		South Leg		West leg	
	14		26		33	
4:00 PM	1	3	9	2	1	7
4:15 PM	1	1	2	4	7	5
4:30 PM	1	3	5	1	5	5
4:45 PM	3	1	9	4	9	6
5:00 PM	0	0	1	4	1	2
5:15 PM	2	1	4	6	10	3
5:30 PM	2	3	5	4	10	5
5:45 PM	5	3	1	0	10	2
	North Leg		South Leg		West leg	
	12		37		46	

Study Name 05 RCW
Start Date 05/26/2016
Start Time 7:00 AM
Site Code ALL VEHICLES

AM

	El Camino Real Southbound			Main St Southwestbound		Spruce St Westbound		El Camino Real Northbound				Redwood Ave Eastbound		**Total**
Start Time	Thru	Right	Total	Hard Right	Total	Right	Total	Thru	Bear Right	Right	Total	Right	Total	
7:00 AM	224	36	260	3	3	1	1	132	57	0	189	126	126	579
7:15 AM	343	38	381	2	2	0	0	196	90	0	286	154	154	823
7:30 AM	410	43	453	2	2	0	0	235	93	0	328	211	211	994
7:45 AM	431	47	478	1	1	0	0	281	111	0	392	201	201	1072
8:00 AM	398	44	442	3	3	0	0	266	126	0	392	168	168	1005
8:15 AM	407	46	453	3	3	0	0	260	112	0	372	212	212	1040
8:30 AM	377	28	405	2	2	0	0	218	98	0	316	190	190	913
8:45 AM	418	44	462	3	3	0	0	204	98	0	302	198	198	965
total	3008	326	3334	19	19	1	1	1792	785	0	2577	1460	1460	7391

Peak Hour 730-830

	El Camino Real Southbound			Main St Southwestbound		Spruce St Westbound		El Camino Real Northbound				Redwood Ave Eastbound		**Total**
Start Time	Thru	Right	Total	Hard Right	Total	Right	Total	Thru	Bear Right	Right	Total	Right	Total	
7:30 AM	410	43	453	2	2	0	0	235	93	0	328	211	211	994
7:45 AM	431	47	478	1	1	0	0	281	111	0	392	201	201	1072
8:00 AM	398	44	442	3	3	0	0	266	126	0	392	168	168	1005
8:15 AM	407	46	453	3	3	0	0	260	112	0	372	212	212	1040
total	1646	180	1826	9	9	0	0	1042	442	0	1484	792	792	4111
% Heavy Veh	2%	6%		0%		#DIV/0!		4%	3%	#DIV/0!		6%		
phf														**0.96**

PM

	El Camino Real Southbound			Main St Southwestbound		Spruce St Westbound		El Camino Real Northbound				Redwood Ave Eastbound		**Total**
Start Time	Thru	Right	Total	Hard Right	Total	Right	Total	Thru	Bear Right	Right	Total	Right	Total	
4:00 PM	340	61	401	8	409	0	0	344	165	0	165	142	307	1282
4:15 PM	356	73	429	7	436	0	0	368	147	2	149	153	302	1316
4:30 PM	319	65	384	6	390	0	0	389	157	3	160	170	330	1264
4:45 PM	351	59	410	6	416	0	0	407	150	1	151	167	318	1295
5:00 PM	355	68	423	7	430	0	0	388	132	3	135	174	309	1297
5:15 PM	374	65	439	4	443	1	1	355	199	1	200	142	342	1425
5:30 PM	352	68	420	7	427	0	0	409	170	3	173	177	350	1370
5:45 PM	352	67	419	2	421	1	1	368	176	3	179	186	365	1385
total	2799	526	3325	47	3372	2	2	3028	1296	16	1312	1311	2623	10634

Peak Hour 500-600

	El Camino Real Southbound			Main St Southwestbound		Spruce St Westbound		El Camino Real Northbound				Redwood Ave Eastbound		**Total**
Start Time	Thru	Right	Total	Hard Right	Total	Right	Total	Thru	Bear Right	Right	Total	Right	Total	
5:00 PM	355	68	423	7	430	0	0	388	132	3	135	174	309	1297
5:15 PM	374	65	439	4	443	1	1	355	199	1	200	142	342	1425
5:30 PM	352	68	420	7	427	0	0	409	170	3	173	177	350	1370
5:45 PM	352	67	419	2	421	1	1	368	176	3	179	186	365	1385
total	1433	268	1701	20	1721	2	2	1520	677	10	687	679	1366	5477
% Heavy Veh	0.6%	1.1%		0.0%		0.0%		1.1%	0.6%	0.0%		0.6%		
phf														**0.96**

Study Name 05 RCW
Start Date 05/26/2016
Start Time 7:00 AM
Site Code BICYCLES ON ROAD

	El Camino Real Southbound		Main St Southwestbound	Spruce St Westbound	El Camino Real Northbound		Redwood Ave Eastbound
Start Time	Thru	Right	Hard Right	Right	Thru	Bear Right	Right
7:00 AM	1	0	0	0	2	0	0
7:15 AM	2	0	0	0	5	0	0
7:30 AM	1	0	0	0	0	0	0
7:45 AM	3	0	0	0	1	2	0
8:00 AM	0	0	0	0	0	1	0
8:15 AM	0	2	0	0	0	0	0
8:30 AM	0	1	0	0	3	0	0
8:45 AM	0	0	0	0	0	2	0
	6		0	0	4		0
4:00 PM	2	0	0	0	1	0	1
4:15 PM	2	0	0	0	0	2	0
4:30 PM	4	0	0	0	0	0	0
4:45 PM	2	1	0	0	0	1	1
5:00 PM	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0
5:30 PM	2	0	1	0	3	0	1
5:45 PM	0	1	0	0	1	1	0

north leg	SW leg	East leg	South Leg	West leg
3	1	4	5	1

Study Name 05 RCW
Start Date 05/26/2016
Start Time 7:00 AM
Site Code BICYCLES ON CROSSWALK

	El Camino Real Southbound		Main St Southwestbound	Spruce St Westbound		El Camino Real Northbound		Redwood Ave Eastbound	
Start Time	Peds CCW	Peds CW	Peds CCW	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	1
8:30 AM	0	0	0	0	0	0	0	3	0
8:45 AM	0	0	1	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	1	4
4:15 PM	0	0	0	0	1	0	0	0	2
4:30 PM	0	0	0	1	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	1	0	0	0	0	2	4
5:45 PM	0	0	0	0	0	0	0	0	0

north leg	SW leg	East leg	South Leg	West leg
0	1	0	0	7

Study Name 05 RCW
Start Date 05/26/2016
Start Time 7:00 AM
Site Code PEDESTRIANS

	El Camino Real Southbound		Main St Southwestbound		Spruce St Westbound		El Camino Real Northbound		Redwood Ave Eastbound	
Start Time	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW
7:00 AM	0	0	2	1	0	0	0	0	0	2
7:15 AM	0	1	4	1	1	0	0	0	1	0
7:30 AM	0	4	1	0	0	0	0	0	0	0
7:45 AM	0	2	2	3	0	0	0	0	1	0
8:00 AM	0	0	2	2	1	0	0	0	1	1
8:15 AM	0	1	2	0	0	0	0	0	1	3
8:30 AM	0	0	0	1	0	0	0	0	0	1
8:45 AM	0	0	3	0	0	0	0	0	1	2
	7		12		1		0		7	
4:00 PM	0	0	2	1	0	1	0	0	1	1
4:15 PM	0	0	1	0	0	0	0	0	4	1
4:30 PM	0	0	0	2	0	1	0	0	4	8
4:45 PM	0	0	0	0	0	0	0	1	2	6
5:00 PM	0	0	3	0	0	0	0	0	2	1
5:15 PM	0	1	4	2	0	0	0	0	2	1
5:30 PM	0	0	2	2	0	0	0	0	3	1
5:45 PM	0	1	2	0	0	0	0	0	0	4

North leg	SW leg	East leg	South leg	West Leg
2	15	0	0	14

Study Name 06 RCW
Start Date 05/26/2016
Start Time 7:00 AM
Site Code ALL VEHICLES

AM

	El Camino Real Southbound					Westbound Approach Westbound					El Camino Real Northbound					Hazel Ave Eastbound					**Total**
Start Time	Left	Thru	Right	U-Turn	Total	Left	Thru	Right	U-Turn	Total	Left	Thru	Right	U-Turn	Total	Left	Thru	Right	U-Turn	Total	
7:00 AM	0	254	102	0	356	0	0	45	0	45	0	135	49	0	184	0	0	33	0	33	332
7:15 AM	0	360	140	0	500	0	0	71	0	71	0	207	62	0	269	0	0	49	0	49	480
7:30 AM	0	512	116	0	628	0	0	69	0	69	0	268	53	0	321	0	0	63	0	63	644
7:45 AM	0	523	124	0	647	0	0	92	0	92	0	292	68	0	360	0	0	70	0	70	685
8:00 AM	0	435	120	0	555	0	0	74	0	74	0	267	56	0	323	0	0	69	0	69	578
8:15 AM	0	491	125	0	616	0	0	67	0	67	0	265	65	0	330	0	0	56	0	56	614
8:30 AM	0	467	112	0	579	0	0	65	0	65	0	240	75	0	315	0	0	48	0	48	580
8:45 AM	0	506	82	0	588	0	0	56	0	56	0	199	57	0	256	0	0	51	0	51	613
total	0	3548	921	0	4469	0	0	539	0	539	0	1873	485	0	2358	0	0	439	0	439	4526

Peak Hour 730-830

	El Camino Real Southbound					Westbound Approach Westbound					El Camino Real Northbound					Hazel Ave Eastbound					**Total**
Start Time	Left	Thru	Right	U-Turn	Total	Left	Thru	Right	U-Turn	Total	Left	Thru	Right	U-Turn	Total	Left	Thru	Right	U-Turn	Total	
7:30 AM	0	512	116	0	628	0	0	69	0	69	0	268	53	0	321	0	0	63	0	63	644
7:45 AM	0	523	124	0	647	0	0	92	0	92	0	292	68	0	360	0	0	70	0	70	685
8:00 AM	0	435	120	0	555	0	0	74	0	74	0	267	56	0	323	0	0	69	0	69	578
8:15 AM	0	491	125	0	616	0	0	67	0	67	0	265	65	0	330	0	0	56	0	56	614
total	0	1961	485	0	2446	0	0	302	0	302	0	1092	242	0	1334	0	0	258	0	258	2521
% Heavy Veh	#DIV/0!	3%	2%			#DIV/0!	#DIV/0!	4%			#DIV/0!	3%	10%			#DIV/0!	#DIV/0!	2%			
phf																					**0.92**

PM

	El Camino Real Southbound					Westbound Approach Westbound					El Camino Real Northbound					Hazel Ave Eastbound					**Total**
Start Time	Left	Thru	Right	U-Turn	Total	Left	Thru	Right	U-Turn	Total	Left	Thru	Right	U-Turn	Total	Left	Thru	Right	U-Turn	Total	
4:00 PM	0	432	91	0	523	0	0	66	0	66	0	441	98	0	539	0	0	64	0	64	562
4:15 PM	0	420	95	0	515	0	0	47	0	47	0	455	82	0	537	0	0	63	0	63	530
4:30 PM	0	396	97	0	493	0	0	55	0	55	0	433	80	0	513	0	0	69	0	69	520
4:45 PM	0	410	110	0	520	0	0	49	0	49	0	458	79	0	537	0	0	66	0	66	525
5:00 PM	0	423	108	0	531	0	0	56	0	56	0	423	74	0	497	0	0	62	0	62	541
5:15 PM	0	424	93	0	517	0	0	56	0	56	0	529	86	0	615	0	0	56	0	56	536
5:30 PM	0	421	109	0	530	0	0	58	0	58	0	495	94	0	589	0	0	72	0	72	551
5:45 PM	0	431	106	0	537	0	0	62	0	62	0	459	79	0	538	0	0	68	0	68	561
total	0	3357	809	0	4166	0	0	449	0	449	0	3693	672	0	4365	0	0	520	0	520	4326

Peak Hour 500-600

	El Camino Real Southbound					Westbound Approach Westbound					El Camino Real Northbound					Hazel Ave Eastbound					**Total**
Start Time	Left	Thru	Right	U-Turn	Total	Left	Thru	Right	U-Turn	Total	Left	Thru	Right	U-Turn	Total	Left	Thru	Right	U-Turn	Total	
5:00 PM	0	423	108	0	531	0	0	56	0	56	0	423	74	0	497	0	0	62	0	62	541
5:15 PM	0	424	93	0	517	0	0	56	0	56	0	529	86	0	615	0	0	56	0	56	536
5:30 PM	0	421	109	0	530	0	0	58	0	58	0	495	94	0	589	0	0	72	0	72	551
5:45 PM	0	431	106	0	537	0	0	62	0	62	0	459	79	0	538	0	0	68	0	68	561
total	0	1699	416	0	2115	0	0	232	0	232	0	1906	333	0	2239	0	0	258	0	258	2189
% Heavy Veh	#DIV/0!	0.6%	1.2%			#DIV/0!	#DIV/0!	3.0%			#DIV/0!	0.6%	2.1%			#DIV/0!	#DIV/0!	1.6%			
phf																					**0.98**

Study Name 06 RCW
Start Date 05/26/2016
Start Time 7:00 AM
Site Code BICYCLES ON ROAD

	El Camino Real Southbound				Westbound Approach Westbound				El Camino Real Northbound				Hazel Ave Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
7:00 AM	0	2	1	0	0	0	0	0	0	2	0	0	0	0	0	0
7:15 AM	0	2	1	0	0	0	0	0	0	2	0	0	0	0	0	0
7:30 AM	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	3	0	0	0	0	0	0	0	3	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0
4:30 PM	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Study Name 06 RCW
Start Date 05/26/2016
Start Time 7:00 AM
Site Code BICYCLES ON CROSSWALK

	El Camino Real Southbound		Westbound Approach Westbound		El Camino Real Northbound		Hazel Ave Eastbound	
Start Time	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW
7:00 AM	0	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	1
8:00 AM	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	1
4:00 PM	0	0	0	0	0	0	0	1
4:15 PM	0	0	0	1	0	0	0	1
4:30 PM	0	0	1	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	2	2
5:45 PM	0	0	0	0	0	0	0	0

North Leg	East Leg	South Leg	West Leg
0	0	0	4

Study Name 06 RCW
Start Date 05/26/2016
Start Time 7:00 AM
Site Code PEDESTRIANS

	El Camino Real Southbound		Westbound Approach Westbound		El Camino Real Northbound		Hazel Ave Eastbound	
Start Time	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW
7:00 AM	0	0	0	0	0	0	0	1
7:15 AM	0	0	1	0	0	0	1	0
7:30 AM	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	1	0
8:00 AM	0	0	1	0	0	0	1	1
8:15 AM	0	0	0	0	0	0	3	4
8:30 AM	0	0	0	0	0	0	1	0
8:45 AM	0	0	0	0	0	0	1	0
4:00 PM	1	0	0	1	0	0	1	4
4:15 PM	0	0	0	0	0	0	6	2
4:30 PM	0	0	0	1	0	0	4	5
4:45 PM	0	0	0	0	0	0	4	6
5:00 PM	0	0	0	0	0	0	3	2
5:15 PM	0	0	0	0	0	0	2	1
5:30 PM	0	0	0	0	0	0	3	4
5:45 PM	0	0	0	0	0	0	0	3

north	east	south	west
0	0	0	18

Study Name 07 RCW
Start Date 05/26/2016
Start Time 7:00 AM
Site Code ALL VEHICLES

AM

	El Camino Real Southbound						Dumbarten Ave Westbound						El Camino Real Northbound						Dumbarten Ave Eastbound						Total
Start Time	Left	Thru	Right	RTOR	U-Turn	Total	Left	Thru	Right	RTOR	U-Turn	Total	Left	Thru	Right	RTOR	U-Turn	Total	Left	Thru	Right	RTOR	U-Turn	Total	
7:00 AM	4	246	0	2	8	260	28	9	6	3	0	46	7	144	7	1	3	162	18	2	10	2	0	32	500
7:15 AM	4	405	1	0	3	413	45	6	12	6	0	69	9	158	2	1	3	173	17	1	20	3	0	41	696
7:30 AM	8	528	2	1	5	544	54	7	11	6	0	78	10	235	6	2	2	255	21	0	30	3	0	54	931
7:45 AM	6	501	6	0	10	523	52	3	13	3	0	71	18	271	9	2	20	320	27	9	27	2	0	65	979
8:00 AM	9	496	4	1	14	524	69	7	11	4	0	91	21	280	9	0	24	334	19	12	25	4	0	60	1009
8:15 AM	13	475	2	1	9	500	36	1	11	2	0	50	12	265	7	0	5	289	33	14	27	5	0	79	918
8:30 AM	6	445	2	1	8	462	14	2	7	1	0	24	17	223	8	0	3	251	28	9	13	1	0	51	788
8:45 AM	9	491	4	0	10	514	22	3	6	4	0	35	7	229	10	0	6	252	16	4	14	3	0	37	838
total	59	3587	21	6	67	3740	320	38	77	29	0	464	101	1805	58	6	66	2036	179	51	166	23	0	419	6659

Peak Hour 730-830

	El Camino Real Southbound						Dumbarten Ave Westbound						El Camino Real Northbound						Dumbarten Ave Eastbound						Total
Start Time	Left	Thru	Right	RTOR	U-Turn	Total	Left	Thru	Right	RTOR	U-Turn	Total	Left	Thru	Right	RTOR	U-Turn	Total	Left	Thru	Right	RTOR	U-Turn	Total	
7:30 AM	8	528	2	1	5	544	54	7	11	6	0	78	10	235	6	2	2	255	21	0	30	3	0	54	931
7:45 AM	6	501	6	0	10	523	52	3	13	3	0	71	18	271	9	2	20	320	27	9	27	2	0	65	979
8:00 AM	9	496	4	1	14	524	69	7	11	4	0	91	21	280	9	0	24	334	19	12	25	4	0	60	1009
8:15 AM	13	475	2	1	9	500	36	1	11	2	0	50	12	265	7	0	5	289	33	14	27	5	0	79	918
total	36	2000	14	3	38	2091	211	18	46	15	0	290	61	1051	31	4	51	1198	100	35	109	14	0	258	3837
% Heavy Veh	8%	3%	0%				1%	0%	2%				2%	4%	3%				0%	0%	0%				
phf																									**0.95**

PM

	El Camino Real Southbound						Dumbarten Ave Westbound						El Camino Real Northbound						Dumbarten Ave Eastbound						Total
Start Time	Left	Thru	Right	RTOR	U-Turn	Total	Left	Thru	Right	RTOR	U-Turn	Total	Left	Thru	Right	RTOR	U-Turn	Total	Left	Thru	Right	RTOR	U-Turn	Total	
4:00 PM	22	328	2	0	19	371	16	0	8	4	0	28	18	459	7	4	8	496	10	7	10	3	0	30	925
4:15 PM	26	357	3	0	18	404	33	4	15	2	0	54	23	442	12	3	8	488	14	8	11	2	0	35	981
4:30 PM	23	360	6	0	14	403	22	2	7	0	0	31	34	433	11	0	12	490	16	3	9	2	0	30	954
4:45 PM	22	341	6	0	17	386	32	3	7	0	0	42	22	481	14	0	10	527	9	6	9	6	0	30	985
5:00 PM	22	356	1	2	19	400	22	4	11	0	0	37	28	508	6	5	6	553	12	4	14	3	0	33	1023
5:15 PM	30	359	6	0	15	410	26	0	10	0	0	36	30	504	8	4	4	550	14	4	17	3	0	38	1034
5:30 PM	20	348	10	0	14	392	29	4	20	1	0	54	29	479	9	6	10	533	18	9	12	1	0	40	1019
5:45 PM	28	406	3	1	18	456	22	6	10	0	0	38	27	466	8	3	3	507	20	3	12	3	0	38	1039
total	193	2855	37	3	134	3222	202	23	88	7	0	320	211	3772	75	25	61	4144	113	44	94	23	0	274	7960

Peak Hour 500-600

	El Camino Real Southbound						Dumbarten Ave Westbound						El Camino Real Northbound						Dumbarten Ave Eastbound						Total
Start Time	Left	Thru	Right	RTOR	U-Turn	Total	Left	Thru	Right	RTOR	U-Turn	Total	Left	Thru	Right	RTOR	U-Turn	Total	Left	Thru	Right	RTOR	U-Turn	Total	
5:00 PM	22	356	1	2	19	400	22	4	11	0	0	37	28	508	6	5	6	553	12	4	14	3	0	33	1023
5:15 PM	30	359	6	0	15	410	26	0	10	0	0	36	30	504	8	4	4	550	14	4	17	3	0	38	1034
5:30 PM	20	348	10	0	14	392	29	4	20	1	0	54	29	479	9	6	10	533	18	9	12	1	0	40	1019
5:45 PM	28	406	3	1	18	456	22	6	10	0	0	38	27	466	8	3	3	507	20	3	12	3	0	38	1039
total	100	1469	20	3	66	1658	99	14	51	1	0	165	114	1957	31	18	23	2143	64	20	55	10	0	149	4115
% Heavy Veh	1.0%	0.6%	0.0%				1.0%	0.0%	0.0%				0.0%	0.9%	0.0%				0.0%	5.0%	0.0%				
phf																									**0.99**

Study Name 07 RCW
Start Date 05/26/2016
Start Time 7:00 AM
Site Code BICYCLES ON ROAD

	El Camino Real Southbound					Dumbarton Ave Westbound					El Camino Real Northbound					Oakwood Dr Eastbound				
Start Time	Left	Thru	Right	Right on Re	U-Turn	Left	Thru	Right	Right on Re	U-Turn	Left	Thru	Right	Right on Re	U-Turn	Left	Thru	Right	Right on Re	U-Turn
7:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	3	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	1	0	0	0	1	1	0	0	0	0	2	0	0	0	1	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	3	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			1					2					4					4		
4:00 PM	0	2	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
4:15 PM	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	4	0	0	0	0	1	0	0	0	0	3	0	0	0	0	0	0	0	0
4:45 PM	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	0	0
5:15 PM	2	1	0	0	0	0	0	1	0	0	0	2	0	0	0	0	1	0	0	0
5:30 PM	0	3	0	0	0	1	0	0	0	0	0	2	0	0	0	0	1	0	0	0
5:45 PM	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0

Study Name 07 RCW
Start Date 05/26/2016
Start Time 7:00 AM
Site Code BICYCLES ON CROSSWALK

	El Camino Real Southbound		Dumbarton Ave Westbound		El Camino Real Northbound		Oakwood Dr Eastbound	
Start Time	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW
7:00 AM	1	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0
7:30 AM	1	0	1	0	0	0	0	0
7:45 AM	2	0	1	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0
8:15 AM	1	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0
	North Leg		East Leg		South Leg		West Leg	
	4		2		0		0	
4:00 PM	1	0	1	0	0	0	0	0
4:15 PM	0	1	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	1	0	0	0	0
5:00 PM	0	1	0	2	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0
	North Leg		East Leg		South Leg		West Leg	
	1		2		0		0	

Study Name 07 RCW
Start Date 05/26/2016
Start Time 7:00 AM
Site Code PEDESTRIANS

	El Camino Real Southbound		Dumbarton Ave Westbound		El Camino Real Northbound		Oakwood Dr Eastbound	
Start Time	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW
7:00 AM	2	1	2	2	0	0	0	0
7:15 AM	3	1	3	2	0	0	0	0
7:30 AM	4	4	3	1	0	0	0	0
7:45 AM	4	2	0	0	0	0	0	0
8:00 AM	6	1	3	1	0	0	0	0
8:15 AM	3	2	1	1	0	0	0	0
8:30 AM	1	5	1	1	0	0	0	0
8:45 AM	3	1	0	4	0	0	0	0
	North Leg		East Leg		South Leg		West Leg	
	26		10		0		0	
4:00 PM	0	1	0	0	0	0	0	1
4:15 PM	1	3	2	0	0	0	0	0
4:30 PM	1	0	4	0	0	0	0	0
4:45 PM	1	3	2	1	0	0	0	0
5:00 PM	0	4	1	1	0	0	0	0
5:15 PM	2	1	5	0	0	0	0	0
5:30 PM	7	1	2	0	0	0	0	0
5:45 PM	3	6	1	1	0	0	0	0
	North Leg		East Leg		South Leg		West Leg	
	24		11		0		0	

Appendix C: Bicycle Facilities Inventory

Redwood City- El Camino Real Bike Facilities Inventory

Side Street	West Side	
	North	South
Finger Avenue	NA	NA
Avondale Avenue	NA	NA
Edgewood Road	class 2	class 2
Claremont Avenue	NA	NA
Whipple Avenue	sharrow	sharrow
Hopkins Avenue	class 2	class 2
Brewster Avenue	sharrow	hatched green class 2; sharrow
Broadway	class 2	green class 2
Winklebeck Street		
James Avenue	NA	NA
Harrison Avenue	NA	NA
Jefferson Avenue	sharrow	sharrow
Wilson Street		
Jackson Avenue	NA	NA
Diller Street		
Madison Avenue	sharrow	sharrow
Vera Avenue	NA	NA
Maple Street		
Beech Street		
Lincoln Avenue	NA	NA
Cedar Street		
Roosevelt Avenue	sharrow	sharrow
Chestnut Street		
Lathrop Street		
Pine Street		
Oak Avenue	NA	NA
Main Street		
Redwood Avenue	NA	NA
Manzanita Street		
Laurel Street		
Hazel Avenue	NA	NA
Willow Street		
Hemlock Avenue	NA	NA
Charter Street		
Center Street	NA	NA
Northumberland Avenue		
Nottingham Avenue		
Carlos Avenue	NA	NA
Buckingham Avenue		
Dumbarton Avenue	NA	NA
Renacto Court	NA	NA
Berkshire Avenue		
Selby Lane		
Columbia Avenue		
Fifth Avenue		
Amherst Avenue		
Loyola Avenue		

Side Street	East Side	
	North	South
Finger Avenue		
Avondale Avenue		
Edgewood Road		
Claremont Avenue		
Whipple Avenue	sharrow	buffered class 2
Hopkins Avenue		
Brewster Avenue	NA	NA
Broadway	bike racks	NA
Winklebeck Street	NA	NA
James Avenue	NA	NA
Harrison Avenue		
Jefferson Avenue	NA	NA
Wilson Street	NA	NA
Jackson Avenue		
Diller Street	NA	NA
Madison Avenue		
Vera Avenue		
Maple Street	class 2	class 2
Beech Street	NA	NA
Lincoln Avenue		
Cedar Street	NA	NA
Roosevelt Avenue		
Chestnut Street	NA	NA
Lathrop Street	NA	NA
Pine Street	NA	NA
Oak Avenue		
Main Street	NA	NA
Redwood Avenue		
Manzanita Street	NA	NA
Laurel Street	NA	NA
Hazel Avenue		
Willow Street	NA	NA
Hemlock Avenue		
Charter Street	NA	NA
Center Street		
Northumberland Avenue	NA	NA
Nottingham Avenue	NA	NA
Carlos Avenue		
Buckingham Avenue	NA	NA
Dumbarton Avenue	NA	NA
Renacto Court		
Berkshire Avenue	NA	NA
Selby Lane	NA	NA
Columbia Avenue	NA	NA
Fifth Avenue	NA	NA
Amherst Avenue	NA	NA
Loyola Avenue	NA	NA

Appendix D: Level of Service Calculations

HCM 2010 Signalized Intersection Summary
1: El Camino Real & Whipple Ave

9/9/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	78	408	40	264	285	256	59	850	446	273	982	76
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	2	0	1	4	0	6	10	1	1	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.91	1.00		0.99	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1885	1900	1845	1845	1792	1827	1845	1845	1863	1828	1900
Adj Flow Rate, veh/h	80	421	41	272	294	105	61	876	336	281	1012	71
Adj No. of Lanes	0	2	0	2	2	1	1	2	1	2	2	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	1	3	3	6	4	3	3	2	4	4
Cap, veh/h	88	523	50	465	483	192	95	1467	658	352	1564	110
Arrive On Green	0.18	0.18	0.18	0.14	0.14	0.14	0.01	0.14	0.14	0.10	0.48	0.48
Sat Flow, veh/h	520	2867	292	3408	3505	1379	1740	3505	1550	3442	3286	230
Grp Volume(v), veh/h	286	0	256	272	294	105	61	876	336	281	535	548
Grp Sat Flow(s),veh/h/ln	1859	0	1819	1704	1752	1379	1740	1752	1550	1721	1737	1779
Q Serve(g_s), s	15.0	0.0	13.5	7.5	7.9	7.1	3.5	23.4	20.1	8.0	23.0	23.0
Cycle Q Clear(g_c), s	15.0	0.0	13.5	7.5	7.9	7.1	3.5	23.4	20.1	8.0	23.0	23.0
Prop In Lane	0.28		0.16	1.00		1.00	1.00		1.00	1.00		0.13
Lane Grp Cap(c), veh/h	330	0	323	465	483	192	95	1467	658	352	827	847
V/C Ratio(X)	0.87	0.00	0.79	0.59	0.61	0.55	0.64	0.60	0.51	0.80	0.65	0.65
Avail Cap(c_a), veh/h	353	0	346	579	596	234	122	1491	660	413	838	858
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	0.83	0.83	0.83	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.1	0.0	39.5	40.6	40.8	40.1	48.8	35.7	33.5	43.9	19.9	19.9
Incr Delay (d2), s/veh	18.9	0.0	11.2	1.2	1.2	2.4	5.8	1.5	2.3	9.1	3.9	3.8
Initial Q Delay(d3),s/veh	0.5	0.0	0.3	0.1	1.3	0.0	78.9	0.8	0.0	0.3	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	9.6	0.0	7.9	3.7	4.2	2.8	4.6	12.5	9.2	4.3	12.0	12.3
LnGrp Delay(d),s/veh	59.5	0.0	51.0	41.8	43.3	42.5	133.5	38.0	35.9	53.3	23.8	23.7
LnGrp LOS	E		D	D	D	D	F	D	D	D	C	C
Approach Vol, veh/h		542			671			1273			1364	
Approach Delay, s/veh		55.5			42.6			42.1			29.8	
Approach LOS		E			D			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	14.2	46.5		21.7	8.5	52.2		17.6
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	12.0	36.0		19.0	7.0	41.0		17.0
Max Q Clear Time (g_c+I1), s	10.0	25.4		17.0	5.5	25.0		9.9
Green Ext Time (p_c), s	0.2	8.5		0.7	0.0	11.9		2.0

Intersection Summary	
HCM 2010 Ctrl Delay	39.7
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
1: El Camino Real & Whipple Ave

9/9/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	141	211	47	305	448	470	69	1313	278	198	983	114
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	20	0	5	10	4	0	0	0	1	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.95	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1886	1900	1881	1900	1900	1863	1881	1845	1863	1881	1900
Adj Flow Rate, veh/h	142	213	42	308	453	271	70	1326	180	200	993	99
Adj No. of Lanes	0	2	0	2	2	1	1	2	1	2	2	0
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	1	1	1	1	0	0	2	1	3	2	1	1
Cap, veh/h	106	368	38	702	732	314	90	1539	664	206	1440	144
Arrive On Green	0.14	0.14	0.14	0.20	0.20	0.20	0.02	0.15	0.15	0.06	0.45	0.45
Sat Flow, veh/h	1239	1976	400	3476	3610	1535	1774	3574	1541	3442	3274	326
Grp Volume(v), veh/h	209	0	188	308	453	271	70	1326	180	200	542	550
Grp Sat Flow(s),veh/h/ln	1824	0	1791	1738	1805	1535	1774	1787	1541	1721	1787	1814
Q Serve(g_s), s	11.2	0.0	10.1	7.8	11.5	17.1	3.9	36.1	10.4	5.8	24.0	24.0
Cycle Q Clear(g_c), s	11.2	0.0	10.1	7.8	11.5	17.1	3.9	36.1	10.4	5.8	24.0	24.0
Prop In Lane	0.68		0.22	1.00		1.00	1.00		1.00	1.00		0.18
Lane Grp Cap(c), veh/h	273	0	266	702	732	314	90	1539	664	206	786	798
V/C Ratio(X)	0.76	0.00	0.71	0.44	0.62	0.86	0.78	0.86	0.27	0.97	0.69	0.69
Avail Cap(c_a), veh/h	292	0	287	730	758	322	106	1573	678	206	803	815
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	0.71	0.71	0.71	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.0	0.0	41.7	35.2	36.8	39.0	48.6	40.0	28.9	47.0	22.5	22.5
Incr Delay (d2), s/veh	10.8	0.0	7.1	0.4	1.5	20.5	19.1	4.8	0.7	53.4	4.9	4.8
Initial Q Delay(d3),s/veh	41.0	0.0	34.5	0.7	3.5	8.6	0.0	0.0	0.0	5.4	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	10.7	0.0	9.2	4.1	6.8	10.3	2.4	19.0	4.6	4.5	13.0	13.2
LnGrp Delay(d),s/veh	93.8	0.0	83.2	36.3	41.8	68.1	67.6	44.8	29.6	105.8	27.4	27.4
LnGrp LOS	F		F	D	D	E	E	D	C	F	C	C
Approach Vol, veh/h		397			1032			1576			1292	
Approach Delay, s/veh		88.8			47.1			44.0			39.5	
Approach LOS		F			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.0	48.0		17.8	9.1	48.9		24.2
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	6.0	41.0		16.0	6.0	41.0		21.0
Max Q Clear Time (g_c+I1), s	7.8	38.1		13.2	5.9	26.0		19.1
Green Ext Time (p_c), s	0.0	2.7		0.7	0.0	12.6		1.0

Intersection Summary	
HCM 2010 Ctrl Delay	47.5
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
2: El Camino Real & Brewster Ave

9/9/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	89	342	10	66	190	37	1	1025	132	115	1007	105
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	3	0	2	1	2
Ped-Bike Adj(A_pbT)	0.97		0.94	0.98		0.94	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1882	1900	1743	1869	1900	1900	1793	1863	1863	1827	1900
Adj Flow Rate, veh/h	91	349	9	67	194	30	1	1046	123	117	1028	89
Adj No. of Lanes	1	2	0	1	2	0	0	2	1	1	2	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	1	1	9	2	2	6	6	2	2	4	0
Cap, veh/h	233	699	18	174	602	91	36	2002	928	153	2511	1134
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	1.00	1.00	1.00	0.08	0.72	0.72
Sat Flow, veh/h	1142	3554	91	939	3062	463	0	3341	1548	1774	3471	1567
Grp Volume(v), veh/h	91	175	183	67	111	113	561	486	123	117	1028	89
Grp Sat Flow(s),veh/h/ln	1142	1788	1858	939	1775	1749	1792	1550	1548	1774	1736	1567
Q Serve(g_s), s	7.4	8.7	8.8	6.8	5.3	5.6	0.0	0.0	0.0	6.5	11.6	1.7
Cycle Q Clear(g_c), s	13.0	8.7	8.8	15.6	5.3	5.6	0.0	0.0	0.0	6.5	11.6	1.7
Prop In Lane	1.00		0.05	1.00		0.26	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	233	352	365	174	349	344	1109	929	928	153	2511	1134
V/C Ratio(X)	0.39	0.50	0.50	0.38	0.32	0.33	0.51	0.52	0.13	0.77	0.41	0.08
Avail Cap(c_a), veh/h	271	411	427	206	408	402	1112	931	930	248	2511	1134
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.85	0.85	0.85	0.70	0.70	0.70
Uniform Delay (d), s/veh	40.1	35.8	35.8	42.7	34.4	34.5	0.1	0.0	0.0	44.9	5.5	4.1
Incr Delay (d2), s/veh	1.1	1.1	1.1	1.4	0.5	0.6	1.4	1.8	0.3	5.5	0.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.3	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	2.4	4.4	4.6	1.8	2.7	2.7	0.7	0.5	0.1	3.9	5.6	1.0
LnGrp Delay(d),s/veh	41.2	36.9	36.9	44.1	34.9	35.1	1.5	1.8	0.3	55.7	5.8	4.3
LnGrp LOS	D	D	D	D	C	D	A	A	A	E	A	A
Approach Vol, veh/h		449			291			1170			1234	
Approach Delay, s/veh		37.7			37.1			1.5			10.4	
Approach LOS		D			D			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	12.3	64.1		23.7		76.3		23.7
Change Period (Y+Rc), s	4.0	4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s	14.0	51.0		23.0		69.0		23.0
Max Q Clear Time (g_c+I1), s	8.5	2.0		15.0		13.6		17.6
Green Ext Time (p_c), s	0.1	25.2		2.7		26.6		2.0

Intersection Summary	
HCM 2010 Ctrl Delay	13.5
HCM 2010 LOS	B

Notes

User approved ignoring U-Turning movement.

HCM 2010 Signalized Intersection Summary
2: El Camino Real & Brewster Ave

9/9/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	47	97	25	147	339	144	1	1375	96	89	1144	92
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	2	0	0	0	10	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.94	0.97		0.90	1.00		0.96	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1885	1900	1845	1881	1900	1900	1863	1792	1881	1881	1900
Adj Flow Rate, veh/h	47	98	13	148	342	137	1	1389	84	90	1156	79
Adj No. of Lanes	1	2	0	1	2	0	0	2	1	1	2	1
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	0	1	1	3	1	1	2	2	6	1	1	0
Cap, veh/h	139	656	85	295	504	196	36	2115	895	114	2547	1119
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	1.00	1.00	1.00	0.13	1.00	1.00
Sat Flow, veh/h	919	3162	409	1227	2430	945	0	3472	1469	1792	3574	1570
Grp Volume(v), veh/h	47	54	57	148	249	230	745	645	84	90	1156	79
Grp Sat Flow(s),veh/h/ln	919	1791	1781	1227	1787	1587	1862	1610	1469	1792	1787	1570
Q Serve(g_s), s	5.0	2.5	2.6	11.2	12.8	13.4	0.0	0.0	0.0	4.9	0.0	0.0
Cycle Q Clear(g_c), s	18.4	2.5	2.6	13.8	12.8	13.4	0.0	0.0	0.0	4.9	0.0	0.0
Prop In Lane	1.00		0.23	1.00		0.60	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	139	371	369	295	371	329	1170	981	895	114	2547	1119
V/C Ratio(X)	0.34	0.15	0.15	0.50	0.67	0.70	0.64	0.66	0.09	0.79	0.45	0.07
Avail Cap(c_a), veh/h	141	376	374	298	375	333	1170	981	895	179	2548	1119
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.60	0.60	0.60	0.70	0.70	0.70
Uniform Delay (d), s/veh	45.3	32.4	32.4	38.4	36.5	36.7	0.0	0.0	0.0	43.0	0.0	0.0
Incr Delay (d2), s/veh	1.4	0.2	0.2	1.3	4.5	6.3	1.6	2.1	0.1	8.4	0.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.7	0.0	0.0	0.4	0.5	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	1.3	1.2	1.3	4.2	6.8	6.5	1.3	0.7	0.0	2.7	0.1	0.0
LnGrp Delay(d),s/veh	46.7	32.6	32.6	40.4	41.0	43.0	2.0	2.6	0.1	51.4	0.4	0.1
LnGrp LOS	D	C	C	D	D	D	A	A	A	D	A	A
Approach Vol, veh/h		158			627			1474			1325	
Approach Delay, s/veh		36.8			41.6			2.2			3.9	
Approach LOS		D			D			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	10.4	64.9		24.7		75.3		24.7
Change Period (Y+Rc), s	4.0	4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s	10.0	57.0		21.0		71.0		21.0
Max Q Clear Time (g_c+I1), s	6.9	2.0		20.4		2.0		15.8
Green Ext Time (p_c), s	0.0	35.6		0.3		40.7		2.1

Intersection Summary	
HCM 2010 Ctrl Delay	11.2
HCM 2010 LOS	B

Notes

User approved ignoring U-Turning movement.

HCM 2010 Signalized Intersection Summary
3: El Camino Real & James Ave

9/9/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	108	87	153	42	59	57	208	1097	65	72	1069	105
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.87		0.83	0.91		0.77	1.00		0.90	1.00		0.85
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1863	1881	1508	1720	1900	1881	1827	1545	1681	1845	1900
Adj Flow Rate, veh/h	111	90	155	43	61	52	214	1131	52	74	1102	99
Adj No. of Lanes	1	1	1	1	1	0	1	2	1	1	2	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	2	1	26	7	7	1	4	23	13	3	0
Cap, veh/h	203	353	253	196	141	120	251	2198	748	91	1929	760
Arrive On Green	0.19	0.19	0.19	0.19	0.19	0.19	0.14	0.63	0.63	0.11	1.00	1.00
Sat Flow, veh/h	1119	1863	1333	833	745	635	1792	3471	1181	1601	3505	1380
Grp Volume(v), veh/h	111	90	155	43	0	113	214	1131	52	74	1102	99
Grp Sat Flow(s),veh/h/ln	1119	1863	1333	833	0	1380	1792	1736	1181	1601	1752	1380
Q Serve(g_s), s	9.7	4.1	10.7	4.6	0.0	7.2	11.7	17.7	1.7	4.5	0.0	0.0
Cycle Q Clear(g_c), s	16.9	4.1	10.7	8.7	0.0	7.2	11.7	17.7	1.7	4.5	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.46	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	203	353	253	196	0	262	251	2198	748	91	1929	760
V/C Ratio(X)	0.55	0.25	0.61	0.22	0.00	0.43	0.85	0.51	0.07	0.81	0.57	0.13
Avail Cap(c_a), veh/h	204	354	253	196	0	262	394	2198	748	160	1929	760
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.65	0.65	0.65	0.92	0.92	0.92
Uniform Delay (d), s/veh	43.2	34.5	37.2	38.2	0.0	35.8	42.0	10.0	7.0	43.8	0.0	0.0
Incr Delay (d2), s/veh	3.0	0.4	4.3	0.6	0.0	1.1	7.0	0.6	0.1	14.2	1.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	3.2	2.2	4.2	1.1	0.0	2.8	6.3	8.5	0.6	2.3	0.3	0.1
LnGrp Delay(d),s/veh	46.2	34.9	41.5	38.8	0.0	36.9	49.0	10.5	7.2	57.9	1.1	0.3
LnGrp LOS	D	C	D	D		D	D	B	A	E	A	A
Approach Vol, veh/h		356			156			1397			1275	
Approach Delay, s/veh		41.3			37.4			16.3			4.4	
Approach LOS		D			D			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.7	67.3		23.0	18.0	59.0		23.0
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	10.0	59.0		19.0	22.0	47.0		19.0
Max Q Clear Time (g_c+I1), s	6.5	19.7		18.9	13.7	2.0		10.7
Green Ext Time (p_c), s	0.0	25.4		0.0	0.4	27.6		1.8

Intersection Summary	
HCM 2010 Ctrl Delay	15.3
HCM 2010 LOS	B

Notes

User approved changes to right turn type.

HCM 2010 Signalized Intersection Summary
3: El Camino Real & James Ave

9/9/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	62	47	78	113	72	97	89	1379	46	118	1254	75
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	3	0	0	0	1	0	3	6	2	4	4	1
Ped-Bike Adj(A_pbT)	1.00		0.87	1.00		0.87	1.00		0.92	1.00		0.92
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1827	1900	1696	1795	1900	1900	1881	1557	1776	1881	1900
Adj Flow Rate, veh/h	65	49	77	119	76	100	94	1452	35	124	1320	73
Adj No. of Lanes	1	1	1	1	1	0	1	2	1	1	2	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	4	0	12	3	3	0	1	22	7	1	0
Cap, veh/h	94	256	197	144	134	148	125	1859	641	158	1956	816
Arrive On Green	0.05	0.14	0.14	0.09	0.18	0.18	0.13	1.00	1.00	0.03	0.18	0.18
Sat Flow, veh/h	1810	1827	1401	1616	647	851	1810	3574	1224	1691	3574	1488
Grp Volume(v), veh/h	65	49	77	119	0	176	94	1452	35	124	1320	73
Grp Sat Flow(s),veh/h/ln	1810	1827	1401	1616	0	1498	1810	1787	1224	1691	1787	1488
Q Serve(g_s), s	3.6	2.4	5.0	7.2	0.0	10.9	5.0	0.0	0.0	7.3	34.4	4.1
Cycle Q Clear(g_c), s	3.6	2.4	5.0	7.2	0.0	10.9	5.0	0.0	0.0	7.3	34.4	4.1
Prop In Lane	1.00		1.00	1.00		0.57	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	94	256	197	144	0	269	125	1859	641	158	1956	816
V/C Ratio(X)	0.69	0.19	0.39	0.83	0.00	0.65	0.75	0.78	0.05	0.78	0.67	0.09
Avail Cap(c_a), veh/h	163	292	224	162	0	268	145	1874	642	169	1962	817
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.48	0.48	0.48	0.88	0.88	0.88
Uniform Delay (d), s/veh	46.9	38.0	39.1	44.8	0.0	38.3	42.6	0.2	0.0	47.9	32.9	20.3
Incr Delay (d2), s/veh	8.7	0.4	1.3	26.0	0.0	5.6	8.8	1.6	0.1	17.8	1.7	0.2
Initial Q Delay(d3),s/veh	23.7	0.0	0.0	0.0	0.0	0.3	17.0	0.3	0.1	21.2	0.1	0.0
%ile BackOfQ(-26165%),veh/ln	2.9	1.2	2.0	4.3	0.0	5.1	3.7	1.6	0.1	5.6	17.8	1.8
LnGrp Delay(d),s/veh	79.4	38.3	40.4	70.8	0.0	44.2	68.5	2.1	0.2	86.9	34.6	20.5
LnGrp LOS	E	D	D	E		D	E	A	A	F	C	C
Approach Vol, veh/h		191			295			1581			1517	
Approach Delay, s/veh		53.1			54.9			6.0			38.2	
Approach LOS		D			D			A			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.0	56.4	12.9	17.6	10.5	58.9	8.7	21.9
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	10.0	48.0	10.0	16.0	8.0	50.0	9.0	17.0
Max Q Clear Time (g_c+I1), s	9.3	2.0	9.2	7.0	7.0	36.4	5.6	12.9
Green Ext Time (p_c), s	0.0	35.4	0.0	0.5	0.0	12.3	0.0	0.6

Intersection Summary	
HCM 2010 Ctrl Delay	26.2
HCM 2010 LOS	C

Notes

User approved changes to right turn type.

HCM Signalized Intersection Capacity Analysis
4: El Camino Real & Jefferson Ave

9/9/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	269	708	264	74	317	181	222	893	64	185	1054	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.90	1.00	1.00	0.91	1.00	1.00	0.90	1.00	1.00	0.84
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1752	3574	1439	3273	3471	1392	1752	3471	1461	1687	3505	1342
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1752	3574	1439	3273	3471	1392	1752	3471	1461	1687	3505	1342
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	277	730	272	76	327	187	229	921	66	191	1087	98
RTOR Reduction (vph)	0	0	128	0	0	69	0	0	39	0	0	63
Lane Group Flow (vph)	277	730	144	76	327	118	229	921	27	191	1087	35
Confl. Peds. (#/hr)			48			84			51			81
Heavy Vehicles (%)	3%	1%	1%	7%	4%	6%	3%	4%	0%	7%	3%	1%
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	7	4		3	8	1	5	2	3	1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	17.5	28.8	28.8	4.0	15.3	29.4	15.2	37.1	41.1	14.1	36.0	36.0
Effective Green, g (s)	17.5	28.8	28.8	4.0	15.3	29.4	15.2	37.1	41.1	14.1	36.0	36.0
Actuated g/C Ratio	0.18	0.29	0.29	0.04	0.15	0.29	0.15	0.37	0.41	0.14	0.36	0.36
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	306	1029	414	130	531	464	266	1287	658	237	1261	483
v/s Ratio Prot	c0.16	c0.20		0.02	0.09	0.04	c0.13	0.27	0.00	0.11	c0.31	
v/s Ratio Perm			0.10			0.05			0.02			0.03
v/c Ratio	0.91	0.71	0.35	0.58	0.62	0.25	0.86	0.72	0.04	0.81	0.86	0.07
Uniform Delay, d1	40.4	31.9	28.2	47.2	39.6	26.9	41.4	26.9	17.6	41.6	29.7	21.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.73	0.95	5.07	1.00	0.76	2.16
Incremental Delay, d2	28.4	2.3	0.5	6.6	2.1	0.3	19.5	2.7	0.0	15.9	7.0	0.3
Delay (s)	68.8	34.1	28.7	53.7	41.7	27.2	49.5	28.2	89.4	57.5	29.5	45.7
Level of Service	E	C	C	D	D	C	D	C	F	E	C	D
Approach Delay (s)		40.5			38.7			35.5			34.5	
Approach LOS		D			D			D			C	

Intersection Summary				
HCM 2000 Control Delay	37.1	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.86			
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	82.7%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis
4: El Camino Real & Jefferson Ave

9/9/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	214	329	137	189	654	183	226	1081	90	200	980	200
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.87	1.00	1.00	0.86	1.00	1.00	0.91	1.00	1.00	0.74
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1805	3574	1402	3467	3574	1341	1805	3539	1443	1736	3574	1185
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1805	3574	1402	3467	3574	1341	1805	3539	1443	1736	3574	1185
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	218	336	140	193	667	187	231	1103	92	204	1000	204
RTOR Reduction (vph)	0	0	104	0	0	64	0	0	51	0	0	136
Lane Group Flow (vph)	218	336	36	193	667	123	231	1103	41	204	1000	68
Confl. Peds. (#/hr)			65			123			54			134
Confl. Bikes (#/hr)			1			4			4			1
Heavy Vehicles (%)	0%	1%	0%	1%	1%	3%	0%	2%	2%	4%	1%	1%
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	7	4		3	8	1	5	2	3	1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	14.4	25.7	25.7	9.5	20.8	34.4	15.3	35.2	44.7	13.6	33.5	33.5
Effective Green, g (s)	14.4	25.7	25.7	9.5	20.8	34.4	15.3	35.2	44.7	13.6	33.5	33.5
Actuated g/C Ratio	0.14	0.26	0.26	0.10	0.21	0.34	0.15	0.35	0.45	0.14	0.34	0.34
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	259	918	360	329	743	514	276	1245	702	236	1197	396
v/s Ratio Prot	c0.12	0.09		0.06	c0.19	0.03	c0.13	c0.31	0.01	0.12	0.28	
v/s Ratio Perm			0.03			0.06			0.02			0.06
v/c Ratio	0.84	0.37	0.10	0.59	0.90	0.24	0.84	0.89	0.06	0.86	0.84	0.17
Uniform Delay, d1	41.7	30.5	28.3	43.4	38.6	23.4	41.1	30.5	15.7	42.3	30.7	23.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.75	0.83	2.53	1.01	1.10	2.67
Incremental Delay, d2	21.2	0.2	0.1	2.7	13.5	0.2	15.7	7.7	0.0	21.7	5.6	0.7
Delay (s)	62.9	30.7	28.5	46.0	52.1	23.7	46.6	33.1	39.8	64.3	39.4	63.5
Level of Service	E	C	C	D	D	C	D	C	D	E	D	E
Approach Delay (s)		40.4			45.9			35.7			46.5	
Approach LOS		D			D			D			D	

Intersection Summary				
HCM 2000 Control Delay	42.1	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.89			
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	84.2%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis
5: El Camino Real & Maple St

9/9/2016

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	61	70	1290	75	70	1481
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	0.93	1.00	0.94	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1492	3471	1498	1770	3505
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	1492	3471	1498	1770	3505
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	65	74	1372	80	74	1576
RTOR Reduction (vph)	0	61	0	30	0	0
Lane Group Flow (vph)	65	13	1372	50	74	1576
Confl. Peds. (#/hr)		30		14		
Heavy Vehicles (%)	2%	1%	4%	1%	2%	3%
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	6		8		7	4
Permitted Phases		6		8		
Actuated Green, G (s)	18.2	18.2	61.9	61.9	7.9	73.8
Effective Green, g (s)	18.2	18.2	61.9	61.9	7.9	73.8
Actuated g/C Ratio	0.18	0.18	0.62	0.62	0.08	0.74
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	322	271	2148	927	139	2586
v/s Ratio Prot	c0.04		c0.40		0.04	c0.45
v/s Ratio Perm		0.01		0.03		
v/c Ratio	0.20	0.05	0.64	0.05	0.53	0.61
Uniform Delay, d1	34.7	33.8	12.0	7.5	44.3	6.2
Progression Factor	1.00	1.00	1.39	2.52	1.31	0.51
Incremental Delay, d2	1.4	0.3	1.4	0.1	2.9	0.3
Delay (s)	36.1	34.1	18.1	19.0	60.8	3.5
Level of Service	D	C	B	B	E	A
Approach Delay (s)	35.1		18.1			6.1
Approach LOS	D		B			A

Intersection Summary				
HCM 2000 Control Delay	12.7	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.56			
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	62.9%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis
5: El Camino Real & Maple St

9/9/2016

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	92	78	1476	69	63	1335
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	0.88	1.00	0.96	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1805	1422	3574	1553	1805	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1805	1422	3574	1553	1805	3539
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	94	80	1506	70	64	1362
RTOR Reduction (vph)	0	67	0	24	0	0
Lane Group Flow (vph)	94	13	1506	46	64	1362
Confl. Peds. (#/hr)		58		6		
Confl. Bikes (#/hr)		1				
Heavy Vehicles (%)	0%	0%	1%	0%	0%	2%
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	6		8		7	4
Permitted Phases		6		8		
Actuated Green, G (s)	16.0	16.0	65.1	65.1	6.9	76.0
Effective Green, g (s)	16.0	16.0	65.1	65.1	6.9	76.0
Actuated g/C Ratio	0.16	0.16	0.65	0.65	0.07	0.76
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	288	227	2326	1011	124	2689
v/s Ratio Prot	c0.05		c0.42		0.04	c0.38
v/s Ratio Perm		0.01		0.03		
v/c Ratio	0.33	0.06	0.65	0.05	0.52	0.51
Uniform Delay, d1	37.2	35.6	10.5	6.3	44.9	4.7
Progression Factor	1.00	1.00	0.74	0.59	1.25	0.72
Incremental Delay, d2	3.0	0.5	1.3	0.1	2.6	0.5
Delay (s)	40.2	36.1	9.1	3.8	59.0	3.9
Level of Service	D	D	A	A	E	A
Approach Delay (s)	38.3		8.8			6.3
Approach LOS	D		A			A

Intersection Summary				
HCM 2000 Control Delay	9.3	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.59			
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	67.6%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis
6: El Camino Real & Roosevelt Ave

9/9/2016

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Volume (vph)	173	264	143	1099	3	1362	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.82	1.00	1.00	1.00	1.00	0.91
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1296	1770	3539	1770	3539	1440
Flt Permitted	0.95	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1296	1770	3539	1770	3539	1440
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.92	0.94	0.94
Adj. Flow (vph)	184	281	152	1169	3	1449	36
RTOR Reduction (vph)	0	163	0	0	0	0	6
Lane Group Flow (vph)	184	118	152	1169	3	1449	30
Confl. Peds. (#/hr)		89					23
Confl. Bikes (#/hr)		6					
Turn Type	Prot	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	4		5	2	1	6	
Permitted Phases		4					6
Actuated Green, G (s)	15.5	15.5	12.8	71.7	0.8	59.7	59.7
Effective Green, g (s)	15.5	15.5	12.8	71.7	0.8	59.7	59.7
Actuated g/C Ratio	0.16	0.16	0.13	0.72	0.01	0.60	0.60
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	274	200	226	2537	14	2112	859
v/s Ratio Prot	c0.10		c0.09	0.33	0.00	c0.41	
v/s Ratio Perm		0.09					0.02
v/c Ratio	0.67	0.59	0.67	0.46	0.21	0.69	0.04
Uniform Delay, d1	39.8	39.3	41.6	6.0	49.3	13.8	8.3
Progression Factor	1.00	1.00	1.24	0.47	0.68	1.64	2.04
Incremental Delay, d2	6.3	4.4	7.3	0.6	6.2	1.5	0.1
Delay (s)	46.2	43.7	58.9	3.4	39.9	24.1	17.0
Level of Service	D	D	E	A	D	C	B
Approach Delay (s)	44.7			9.8		23.9	
Approach LOS	D			A		C	

Intersection Summary				
HCM 2000 Control Delay	21.2	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.68			
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	68.7%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis
6: El Camino Real & Roosevelt Ave

9/9/2016

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Volume (vph)	137	168	213	1382	14	1218	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.75	1.00	1.00	1.00	1.00	0.76
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1192	1770	3539	1770	3539	1208
Flt Permitted	0.95	1.00	0.95	1.00	0.19	1.00	1.00
Satd. Flow (perm)	1770	1192	1770	3539	354	3539	1208
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.92	0.98	0.98
Adj. Flow (vph)	140	171	217	1410	15	1243	102
RTOR Reduction (vph)	0	149	0	0	0	0	18
Lane Group Flow (vph)	140	22	217	1410	15	1243	84
Confl. Peds. (#/hr)		127					70
Confl. Bikes (#/hr)		2					5
Turn Type	Prot	Perm	Prot	NA	Perm	NA	Perm
Protected Phases	4		5	2		6	
Permitted Phases		4			6		6
Actuated Green, G (s)	12.9	12.9	16.9	79.1	58.2	58.2	58.2
Effective Green, g (s)	12.9	12.9	16.9	79.1	58.2	58.2	58.2
Actuated g/C Ratio	0.13	0.13	0.17	0.79	0.58	0.58	0.58
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	228	153	299	2799	206	2059	703
v/s Ratio Prot	c0.08		c0.12	0.40		c0.35	
v/s Ratio Perm		0.02			0.04		0.07
v/c Ratio	0.61	0.14	0.73	0.50	0.07	0.60	0.12
Uniform Delay, d1	41.2	38.7	39.4	3.6	9.1	13.5	9.4
Progression Factor	1.00	1.00	1.26	0.33	0.71	0.54	0.57
Incremental Delay, d2	4.8	0.4	7.8	0.6	0.6	1.2	0.3
Delay (s)	46.0	39.1	57.4	1.8	7.1	8.5	5.7
Level of Service	D	D	E	A	A	A	A
Approach Delay (s)	42.2			9.2		8.3	
Approach LOS	D			A		A	

Intersection Summary				
HCM 2000 Control Delay	11.9	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.63			
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	68.7%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis
7: El Camino Real & Oak Ave

9/9/2016

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Volume (vph)	153	89	153	913	9	1693	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00		1.00	0.95	1.00	0.91	
Frpb, ped/bikes	0.95		1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00	
Frt	0.95		1.00	1.00	1.00	1.00	
Flt Protected	0.97		0.95	1.00	0.95	1.00	
Satd. Flow (prot)	1656		1805	3511	1770	5020	
Flt Permitted	0.97		0.95	1.00	0.30	1.00	
Satd. Flow (perm)	1656		1805	3511	560	5020	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.92	0.96	0.96
Adj. Flow (vph)	159	93	159	951	10	1764	51
RTOR Reduction (vph)	23	0	0	0	0	3	0
Lane Group Flow (vph)	229	0	159	951	10	1812	0
Confl. Peds. (#/hr)	47	59					47
Confl. Bikes (#/hr)		6					6
Heavy Vehicles (%)	0%	2%	0%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	4	0	3	2
Turn Type	Prot		Prot	NA	Perm	NA	
Protected Phases	4		5	2		6	
Permitted Phases					6		
Actuated Green, G (s)	18.5		13.4	73.5	56.1	56.1	
Effective Green, g (s)	18.5		13.4	73.5	56.1	56.1	
Actuated g/C Ratio	0.18		0.13	0.74	0.56	0.56	
Clearance Time (s)	4.0		4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	306		241	2580	314	2816	
v/s Ratio Prot	c0.14		c0.09	0.27		c0.36	
v/s Ratio Perm					0.02		
v/c Ratio	0.75		0.66	0.37	0.03	0.64	
Uniform Delay, d1	38.6		41.1	4.8	9.8	15.1	
Progression Factor	1.00		0.79	2.26	0.68	0.61	
Incremental Delay, d2	9.6		6.2	0.4	0.1	0.9	
Delay (s)	48.2		38.5	11.3	6.8	10.1	
Level of Service	D		D	B	A	B	
Approach Delay (s)	48.2			15.2		10.1	
Approach LOS	D			B		B	

Intersection Summary				
HCM 2000 Control Delay	14.9	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.67			
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	67.9%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis
7: El Camino Real & Oak Ave

9/9/2016

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Volume (vph)	126	75	224	1293	20	1555	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00		1.00	0.95	1.00	0.91	
Frpb, ped/bikes	0.93		1.00	1.00	1.00	0.99	
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00	
Frt	0.95		1.00	1.00	1.00	0.99	
Flt Protected	0.97		0.95	1.00	0.95	1.00	
Satd. Flow (prot)	1623		1805	3511	1770	5018	
Flt Permitted	0.97		0.95	1.00	0.21	1.00	
Satd. Flow (perm)	1623		1805	3511	393	5018	
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.92	0.99	0.99
Adj. Flow (vph)	127	76	226	1306	22	1571	93
RTOR Reduction (vph)	23	0	0	0	0	5	0
Lane Group Flow (vph)	180	0	226	1306	22	1659	0
Confl. Peds. (#/hr)	12	83					58
Confl. Bikes (#/hr)		18					6
Heavy Vehicles (%)	0%	1%	0%	2%	2%	1%	0%
Bus Blockages (#/hr)	0	0	0	4	0	3	2
Turn Type	Prot		Prot	NA	Perm	NA	
Protected Phases	4		5	2		6	
Permitted Phases					6		
Actuated Green, G (s)	15.8		17.5	76.2	54.7	54.7	
Effective Green, g (s)	15.8		17.5	76.2	54.7	54.7	
Actuated g/C Ratio	0.16		0.18	0.76	0.55	0.55	
Clearance Time (s)	4.0		4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	256		315	2675	214	2744	
v/s Ratio Prot	c0.11		c0.13	0.37		c0.33	
v/s Ratio Perm					0.06		
v/c Ratio	0.70		0.72	0.49	0.10	0.60	
Uniform Delay, d1	39.9		38.9	4.5	10.9	15.3	
Progression Factor	1.00		0.85	0.98	0.40	0.34	
Incremental Delay, d2	8.5		6.6	0.6	0.8	0.9	
Delay (s)	48.4		39.6	5.0	5.2	6.2	
Level of Service	D		D	A	A	A	
Approach Delay (s)	48.4			10.1		6.1	
Approach LOS	D			B		A	

Intersection Summary				
HCM 2000 Control Delay	10.4	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.64			
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	68.3%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Vol, veh/h	0	792	0	1042	442	0	1646	180	0	0
Conflicting Peds, #/hr	0	7	0	0	0	0	0	7	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Free	-	-	None	-	-	Free	-	-
Storage Length	-	0	-	-	0	-	-	0	-	0
Veh in Median Storage, #	0	-	-	0	-	-	0	-	0	-
Grade, %	0	-	-	0	-	-	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	6	0	4	3	0	2	6	0	0
Mvmt Flow	0	825	0	1085	460	0	1715	188	0	0

Major/Minor	Minor2		Major1			Major2			Minor1	
Conflicting Flow All	-	-	1715	0	0	1097	0	0	1954	555
Stage 1	-	-	-	-	-	-	-	-	1097	-
Stage 2	-	-	-	-	-	-	-	-	857	-
Critical Hdwy	-	-	4.1	-	-	4.1	-	-	7.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	6.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	6.5	-
Follow-up Hdwy	-	-	2.2	-	-	2.2	-	-	3.5	3.3
Pot Cap-1 Maneuver	0	0	375	-	-	644	-	0	39	480
Stage 1	0	0	-	-	-	-	-	0	231	-
Stage 2	0	0	-	-	-	-	-	0	323	-
Platoon blocked, %	-			-	-		-			
Mov Cap-1 Maneuver	-	-	375	-	-	644	-	-	39	475
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	39	-
Stage 1	-	-	-	-	-	-	-	-	229	-
Stage 2	-	-	-	-	-	-	-	-	323	-

Approach	EB	NB	SB	SW
HCM Control Delay, s	0	0	0	12.7
HCM LOS	A			B

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SWLn1
Capacity (veh/h)	375	-	-	-	644	-	475
HCM Lane V/C Ratio	-	-	-	-	-	-	0.02
HCM Control Delay (s)	0	-	-	0	0	-	12.7
HCM Lane LOS	A	-	-	A	A	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0	-	0.1

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Vol, veh/h	0	679	0	1520	687	0	1433	268	0	0
Conflicting Peds, #/hr	0	14	0	0	2	0	0	14	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Free	-	-	None	-	-	Free	-	-
Storage Length	-	0	-	-	0	-	-	0	-	0
Veh in Median Storage, #	0	-	-	0	-	-	0	-	0	-
Grade, %	0	-	-	0	-	-	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	1	0	1	1	0	1	1	0	0
Mvmt Flow	0	707	0	1583	716	0	1493	279	0	0

Major/Minor	Minor2		Major1			Major2			Minor1	
Conflicting Flow All	-	-	1493	0	0	1598	0	0	2344	807
Stage 1	-	-	-	-	-	-	-	-	1598	-
Stage 2	-	-	-	-	-	-	-	-	746	-
Critical Hdwy	-	-	4.1	-	-	4.1	-	-	7.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	6.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	6.5	-
Follow-up Hdwy	-	-	2.2	-	-	2.2	-	-	3.5	3.3
Pot Cap-1 Maneuver	0	0	456	-	-	415	-	0	20	329
Stage 1	0	0	-	-	-	-	-	0	113	-
Stage 2	0	0	-	-	-	-	-	0	376	-
Platoon blocked, %	-			-	-		-			
Mov Cap-1 Maneuver	-	-	455	-	-	415	-	-	20	325
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	20	-
Stage 1	-	-	-	-	-	-	-	-	112	-
Stage 2	-	-	-	-	-	-	-	-	375	-

Approach	EB	NB	SB	SW
HCM Control Delay, s	0	0	0	16.8
HCM LOS	A			C

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SWLn1
Capacity (veh/h)	455	-	-	-	415	-	325
HCM Lane V/C Ratio	-	-	-	-	-	-	0.064
HCM Control Delay (s)	0	-	-	0	0	-	16.8
HCM Lane LOS	A	-	-	A	A	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0	-	0.2

Intersection	
Int Delay, s/veh	26.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	258	0	0	302	0	1092	242	0	1961	485
Future Vol, veh/h	0	0	258	0	0	302	0	1092	242	0	1961	485
Conflicting Peds, #/hr	0	0	10	0	0	1	0	0	1	0	0	10
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	Yield	-	-	Free	-	-	Free
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	2	0	0	4	0	3	10	0	3	2
Mvmt Flow	0	0	280	0	0	328	0	1187	263	0	2132	527

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	1076	-	-	594	-	0	-	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.14	-	-	7.18	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.92	-	-	3.94	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	~ 185	0	0	380	0	-	0	0	-	0
Stage 1	0	0	-	0	0	-	0	-	0	0	-	0
Stage 2	0	0	-	0	0	-	0	-	0	0	-	0
Platoon blocked, %								-			-	
Mov Cap-1 Maneuver	-	-	~ 183	-	-	380	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	$ 311.6	51.8	0	0
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBT	EBLn1	WBLn1	SBT
Capacity (veh/h)	-	183	380	-
HCM Lane V/C Ratio	-	1.532	0.864	-
HCM Control Delay (s)	-	$ 311.6	51.8	-
HCM Lane LOS	-	F	F	-
HCM 95th %tile Q(veh)	-	18	8.3	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	15.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	258	0	0	232	0	1906	333	0	1699	416
Future Vol, veh/h	0	0	258	0	0	232	0	1906	333	0	1699	416
Conflicting Peds, #/hr	0	0	18	0	0	0	0	0	0	0	0	18
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	Yield	-	-	Free	-	-	Free
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	0	0	2	0	0	3	0	1	2	0	1	1
Mvmt Flow	0	0	263	0	0	237	0	1945	340	0	1734	424

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	885	-	-	972	-	0	-	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.14	-	-	7.16	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.92	-	-	3.93	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	~ 247	0	0	~ 215	0	-	0	0	-	0
Stage 1	0	0	-	0	0	-	0	-	0	0	-	0
Stage 2	0	0	-	0	0	-	0	-	0	0	-	0
Platoon blocked, %								-			-	
Mov Cap-1 Maneuver	-	-	~ 243	-	-	~ 215	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	125.6	138.4	0	0
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBT	EBLn1	WBLn1	SBT
Capacity (veh/h)	-	243	215	-
HCM Lane V/C Ratio	-	1.083	1.101	-
HCM Control Delay (s)	-	125.6	138.4	-
HCM Lane LOS	-	F	F	-
HCM 95th %tile Q(veh)	-	11.3	10.9	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

HCM 2010 Signalized Intersection Summary
10: El Camino Real & Oakwood Dr/Dumbarton Ave 9/9/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	100	35	125	211	18	61	112	1051	35	74	2000	17
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	1	0	1	4	0
Ped-Bike Adj(A_pbT)	1.00		0.96	0.99		0.96	1.00		0.96	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1878	1900	1863	1827	1900	1759	1845	1900
Adj Flow Rate, veh/h	104	36	115	220	19	48	117	1095	32	77	2083	15
Adj No. of Lanes	0	1	0	0	1	0	1	3	0	1	3	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	2	4	4	8	3	3
Cap, veh/h	267	102	262	398	36	74	145	2296	67	100	2264	16
Arrive On Green	0.36	0.36	0.36	0.36	0.36	0.36	0.08	0.46	0.46	0.06	0.44	0.44
Sat Flow, veh/h	601	284	727	930	100	207	1774	4976	145	1675	5157	37
Grp Volume(v), veh/h	255	0	0	287	0	0	117	732	395	77	1356	742
Grp Sat Flow(s),veh/h/ln	1612	0	0	1237	0	0	1774	1663	1796	1675	1679	1836
Q Serve(g_s), s	0.0	0.0	0.0	9.0	0.0	0.0	6.5	15.2	15.2	4.5	38.1	38.1
Cycle Q Clear(g_c), s	11.3	0.0	0.0	20.3	0.0	0.0	6.5	15.2	15.2	4.5	38.1	38.1
Prop In Lane	0.41		0.45	0.77		0.17	1.00		0.08	1.00		0.02
Lane Grp Cap(c), veh/h	631	0	0	509	0	0	145	1534	828	100	1474	806
V/C Ratio(X)	0.40	0.00	0.00	0.56	0.00	0.00	0.81	0.48	0.48	0.77	0.92	0.92
Avail Cap(c_a), veh/h	632	0	0	510	0	0	160	1535	828	168	1511	826
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.1	0.0	0.0	27.3	0.0	0.0	45.1	18.6	18.6	46.4	26.5	26.6
Incr Delay (d2), s/veh	1.9	0.0	0.0	4.5	0.0	0.0	23.8	0.2	0.4	11.5	9.3	15.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.1	0.3	0.2
%ile BackOfQ(-26165%),veh/ln	5.7	0.0	0.0	7.3	0.0	0.0	4.1	7.0	7.6	2.6	19.7	22.9
LnGrp Delay(d),s/veh	26.0	0.0	0.0	31.8	0.0	0.0	68.9	18.9	19.1	61.0	36.2	42.1
LnGrp LOS	C			C			E	B	B	E	D	D
Approach Vol, veh/h		255			287			1244			2175	
Approach Delay, s/veh		26.0			31.8			23.6			39.1	
Approach LOS		C			C			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		40.1	12.2	47.8		40.1	9.8	50.1
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		34.0	9.0	45.0		34.0	10.0	44.0
Max Q Clear Time (g_c+I1), s		13.3	8.5	40.1		22.3	6.5	17.2
Green Ext Time (p_c), s		3.8	0.0	3.6		2.9	0.0	23.8

Intersection Summary	
HCM 2010 Ctrl Delay	32.9
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
10: El Camino Real & Oakwood Dr/Dumbarton Ave 9/9/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	64	20	65	99	14	52	137	1957	49	166	1469	23
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	1	0	0	2	0	0	0	0	1	0	0
Ped-Bike Adj(A_pbT)	0.96		0.93	0.97		0.91	1.00		0.96	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1888	1900	1900	1889	1900	1900	1882	1900	1759	1845	1900
Adj Flow Rate, veh/h	65	20	56	100	14	52	138	1977	31	168	1484	3
Adj No. of Lanes	0	1	0	0	1	0	1	3	0	1	3	0
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	5	5	5	0	0	0	0	1	1	8	3	3
Cap, veh/h	140	60	90	173	36	66	170	3143	49	203	3272	7
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.15	0.09	0.61	0.61	0.12	0.63	0.63
Sat Flow, veh/h	580	334	602	777	186	439	1810	5207	82	1675	5191	10
Grp Volume(v), veh/h	141	0	0	166	0	0	138	1300	708	168	960	527
Grp Sat Flow(s),veh/h/ln	1516	0	0	1402	0	0	1810	1712	1864	1675	1679	1843
Q Serve(g_s), s	0.0	0.0	0.0	2.9	0.0	0.0	7.5	24.0	24.1	9.8	14.7	14.7
Cycle Q Clear(g_c), s	8.4	0.0	0.0	11.3	0.0	0.0	7.5	24.0	24.1	9.8	14.7	14.7
Prop In Lane	0.46		0.40	0.60		0.31	1.00		0.04	1.00		0.01
Lane Grp Cap(c), veh/h	287	0	0	277	0	0	170	2067	1125	203	2117	1162
V/C Ratio(X)	0.49	0.00	0.00	0.60	0.00	0.00	0.81	0.63	0.63	0.83	0.45	0.45
Avail Cap(c_a), veh/h	381	0	0	365	0	0	271	2079	1131	302	2123	1165
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.3	0.0	0.0	40.5	0.0	0.0	44.4	12.7	12.7	43.1	9.6	9.6
Incr Delay (d2), s/veh	1.3	0.0	0.0	2.1	0.0	0.0	9.3	1.5	2.7	11.4	0.7	1.3
Initial Q Delay(d3),s/veh	0.2	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	3.9	0.0	0.0	4.8	0.0	0.0	4.2	11.7	13.1	5.3	7.0	7.9
LnGrp Delay(d),s/veh	40.7	0.0	0.0	43.5	0.0	0.0	53.7	14.2	15.4	55.5	10.3	10.9
LnGrp LOS	D			D			D	B	B	E	B	B
Approach Vol, veh/h		141			166			2146			1655	
Approach Delay, s/veh		40.7			43.5			17.1			15.1	
Approach LOS		D			D			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		19.4	13.4	67.2		19.4	15.9	64.7
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		22.0	15.0	51.0		22.0	18.0	48.0
Max Q Clear Time (g_c+I1), s		10.4	9.5	16.7		13.3	11.8	26.1
Green Ext Time (p_c), s		1.5	0.1	30.7		1.3	0.2	20.4

Intersection Summary	
HCM 2010 Ctrl Delay	18.2
HCM 2010 LOS	B

Appendix E: Queuing Calculations

Queuing and Blocking Report
AM Peak Hour Existing Conditions 9/12/2016

Intersection: 1: El Camino Real & Whipple Ave

Movement	EB	EB	WB	WB	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	LT	TR	L	L	T	T	R	L	T	T	R	L
Maximum Queue (ft)	248	212	112	124	328	250	166	121	232	247	172	132
Average Queue (ft)	188	149	76	118	205	136	89	54	130	139	111	94
95th Queue (ft)	259	226	151	133	408	335	161	121	197	229	188	150
Link Distance (ft)	754	754			824	824	824		1538	1538		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)			100	100				155			150	250
Storage Blk Time (%)			0	25	9				2	2	2	
Queuing Penalty (veh)			1	36	23				1	11	8	

Intersection: 1: El Camino Real & Whipple Ave

Movement	SB	SB	SB
Directions Served	L	T	TR
Maximum Queue (ft)	185	258	261
Average Queue (ft)	136	207	206
95th Queue (ft)	213	279	293
Link Distance (ft)		264	264
Upstream Blk Time (%)	0	1	2
Queuing Penalty (veh)	0	9	15
Storage Bay Dist (ft)	250		
Storage Blk Time (%)	0	2	
Queuing Penalty (veh)	0	6	

Queuing and Blocking Report
PM Peak Hour Existing Conditions 9/12/2016

Intersection: 1: El Camino Real & Whipple Ave

Movement	EB	EB	WB	WB	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	LT	TR	L	L	T	T	R	L	T	T	R	L
Maximum Queue (ft)	226	190	112	124	302	253	336	166	570	622	175	127
Average Queue (ft)	167	111	76	122	213	155	232	73	418	463	148	76
95th Queue (ft)	240	208	151	132	296	248	383	161	720	787	231	133
Link Distance (ft)	754	754			824	824	824		1538	1538		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)			100	100				155			150	250
Storage Blk Time (%)			0	23	19			1	41	42	0	
Queuing Penalty (veh)			1	53	59			7	28	118	3	

Intersection: 1: El Camino Real & Whipple Ave

Movement	SB	SB	SB
Directions Served	L	T	TR
Maximum Queue (ft)	196	266	264
Average Queue (ft)	113	205	204
95th Queue (ft)	201	284	284
Link Distance (ft)		260	260
Upstream Blk Time (%)	0	2	2
Queuing Penalty (veh)	0	15	15
Storage Bay Dist (ft)	250		
Storage Blk Time (%)	0	3	
Queuing Penalty (veh)	0	7	

Intersection: 2: El Camino Real & Brewster Ave

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	LT	T	R	L	T	T
Maximum Queue (ft)	113	164	154	79	152	113	111	135	96	131	142	176
Average Queue (ft)	62	106	91	54	83	49	55	81	31	73	72	101
95th Queue (ft)	122	171	163	94	163	112	118	143	98	141	155	183
Link Distance (ft)		1267	1267		918	918	1221	1221			1538	1538
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	90			55					75	260		
Storage Blk Time (%)	4	18		13	18			9	1			17
Queuing Penalty (veh)	7	16		13	12			11	3			18

Intersection: 2: El Camino Real & Brewster Ave

Movement	SB
Directions Served	R
Maximum Queue (ft)	74
Average Queue (ft)	39
95th Queue (ft)	89
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	50
Storage Blk Time (%)	1
Queuing Penalty (veh)	6

Intersection: 2: El Camino Real & Brewster Ave

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	LT	T	R	L	T	T
Maximum Queue (ft)	95	100	58	79	326	304	144	169	89	114	143	168
Average Queue (ft)	50	48	22	72	229	212	62	89	31	64	84	105
95th Queue (ft)	102	112	60	94	347	336	122	158	86	117	157	177
Link Distance (ft)		1267	1267		918	918	1221	1221			1538	1538
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	90			55					75	260		
Storage Blk Time (%)	10	1		43	52			17	0			18
Queuing Penalty (veh)	5	0		72	76			16	3			16

Intersection: 2: El Camino Real & Brewster Ave

Movement	SB
Directions Served	R
Maximum Queue (ft)	71
Average Queue (ft)	31
95th Queue (ft)	85
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	50
Storage Blk Time (%)	1
Queuing Penalty (veh)	6

Queuing and Blocking Report
AM Peak Hour Existing Conditions 9/12/2016

Intersection: 3: El Camino Real & James Ave

Movement	EB	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	TR	L	T	T	R	L	T	T
Maximum Queue (ft)	106	158	95	99	129	184	315	311	224	101	192	220
Average Queue (ft)	79	72	59	47	74	134	182	198	62	48	110	133
95th Queue (ft)	122	183	121	114	143	207	343	338	209	97	190	227
Link Distance (ft)		560			407		854	854			1221	1221
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	90		120	125		160			200	160		
Storage Blk Time (%)	17	2	1	1	3	4	4	5	0		2	22
Queuing Penalty (veh)	41	6	3	1	1	24	8	4	1		2	24

Intersection: 3: El Camino Real & James Ave

Movement	SB
Directions Served	R
Maximum Queue (ft)	101
Average Queue (ft)	38
95th Queue (ft)	110
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	90
Storage Blk Time (%)	0
Queuing Penalty (veh)	0

Queuing and Blocking Report
PM Peak Hour Existing Conditions 9/12/2016

Intersection: 3: El Camino Real & James Ave

Movement	EB	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	TR	L	T	T	R	L	T	T
Maximum Queue (ft)	73	65	58	136	197	135	226	250	70	170	314	345
Average Queue (ft)	41	27	28	98	112	83	171	193	22	109	192	224
95th Queue (ft)	76	66	58	165	218	152	245	262	82	185	322	340
Link Distance (ft)		560			407		854	854			1221	1221
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	90		120	125		160			200	160		
Storage Blk Time (%)	1	0		11	3	1	16	11	0	2	15	38
Queuing Penalty (veh)	1	0		18	3	5	14	5	0	11	18	28

Intersection: 3: El Camino Real & James Ave

Movement	SB
Directions Served	R
Maximum Queue (ft)	96
Average Queue (ft)	40
95th Queue (ft)	111
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	90
Storage Blk Time (%)	0
Queuing Penalty (veh)	0

Intersection: 4: El Camino Real & Jefferson Ave

Movement	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	T	T	R	L	L	T	T	R	L	T	T
Maximum Queue (ft)	224	563	489	125	48	119	272	231	114	252	316	319
Average Queue (ft)	206	395	346	113	7	96	198	146	60	165	236	257
95th Queue (ft)	268	662	584	153	48	145	326	291	115	280	344	362
Link Distance (ft)		638	638				718	718	718		253	253
Upstream Blk Time (%)		4	3							0	5	7
Queuing Penalty (veh)		0	0							0	31	46
Storage Bay Dist (ft)	200			100	95	95				230		
Storage Blk Time (%)	50	4	41	5	0	49	20			1	6	14
Queuing Penalty (veh)	177	12	108	18	0	78	15			2	14	9

Intersection: 4: El Camino Real & Jefferson Ave

Movement	NB	B98	B98	SB	SB	SB	SB
Directions Served	R	T	T	L	T	T	R
Maximum Queue (ft)	175	26	60	249	652	690	285
Average Queue (ft)	51	6	15	168	462	517	165
95th Queue (ft)	185	38	67	302	820	845	381
Link Distance (ft)		894	894		854	854	
Upstream Blk Time (%)					0	0	
Queuing Penalty (veh)					0	0	
Storage Bay Dist (ft)	190			225			260
Storage Blk Time (%)	0			2	28	43	0
Queuing Penalty (veh)	0			9	51	41	1

Intersection: 5: El Camino Real & Maple St

Movement	WB	WB	NB	NB	NB	SB	SB	SB	B98	B98	B98
Directions Served	L	R	T	T	R	L	T	T	T	T	
Maximum Queue (ft)	74	56	166	157	53	102	978	990	271	348	72
Average Queue (ft)	38	33	136	134	21	56	901	948	114	185	23
95th Queue (ft)	77	62	171	167	56	110	1039	1023	296	397	150
Link Distance (ft)	568		131	131	131		894	894	253	253	253
Upstream Blk Time (%)			11	11			18	48	2	6	1
Queuing Penalty (veh)			51	49			124	334	9	29	5
Storage Bay Dist (ft)		90				125					
Storage Blk Time (%)	1	0				0					
Queuing Penalty (veh)	1	0				3					

Intersection: 4: El Camino Real & Jefferson Ave

Movement	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	T	T	R	L	L	T	T	R	L	T	T
Maximum Queue (ft)	212	255	208	112	106	120	649	629	471	252	318	327
Average Queue (ft)	152	175	141	52	39	119	605	567	301	201	269	294
95th Queue (ft)	245	393	342	108	115	123	826	813	817	298	370	373
Link Distance (ft)		638	638				718	718	718		253	253
Upstream Blk Time (%)							31	19	12	0	9	18
Queuing Penalty (veh)							0	0	0	0	72	138
Storage Bay Dist (ft)	200			100	95	95				230		
Storage Blk Time (%)	19	0	6	0	0	70	37			1	11	23
Queuing Penalty (veh)	30	0	8	0	0	228	70			3	26	21

Intersection: 4: El Camino Real & Jefferson Ave

Movement	NB	B98	B98	SB	SB	SB	SB
Directions Served	R	T	T	L	T	T	R
Maximum Queue (ft)	215	146	143	249	407	448	284
Average Queue (ft)	75	61	70	161	294	325	157
95th Queue (ft)	231	201	210	275	470	508	343
Link Distance (ft)		894	894		854	854	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	190			225			260
Storage Blk Time (%)	0			1	20	31	0
Queuing Penalty (veh)	0			6	40	62	1

Intersection: 5: El Camino Real & Maple St

Movement	WB	WB	NB	NB	NB	SB	SB	SB	B98	B98
Directions Served	L	R	T	T	R	L	T	T	T	T
Maximum Queue (ft)	71	59	154	161	49	85	241	435	42	57
Average Queue (ft)	47	39	131	137	17	50	50	144	6	15
95th Queue (ft)	84	66	171	171	50	79	324	470	64	116
Link Distance (ft)	568		131	131	131		894	894	253	253
Upstream Blk Time (%)			9	9						0
Queuing Penalty (veh)			46	48						0
Storage Bay Dist (ft)		90				125				
Storage Blk Time (%)	1	0								
Queuing Penalty (veh)	0	0								

Queuing and Blocking Report
AM Peak Hour Existing Conditions

9/12/2016

Intersection: 6: El Camino Real & Roosevelt Ave

Movement	EB	EB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	R	L	T	T	U	T	T	R
Maximum Queue (ft)	247	170	113	213	182	23	290	329	57
Average Queue (ft)	117	110	91	119	86	5	221	270	18
95th Queue (ft)	225	182	127	227	177	31	297	339	76
Link Distance (ft)	610			751	751		354	354	
Upstream Blk Time (%)								0	
Queuing Penalty (veh)								1	
Storage Bay Dist (ft)		150	90			60			70
Storage Blk Time (%)	2	9	23	2			29	34	0
Queuing Penalty (veh)	5	16	128	2			1	11	0

Intersection: 7: El Camino Real & Oak Ave

Movement	EB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LR	L	T	T	U	T	T	TR
Maximum Queue (ft)	205	161	203	187	18	146	180	125
Average Queue (ft)	140	94	118	111	4	105	130	76
95th Queue (ft)	234	162	216	200	21	164	194	158
Link Distance (ft)	387		335	335		751	751	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)		225			115			100
Storage Blk Time (%)			0			5	17	2
Queuing Penalty (veh)			0			0	102	9

Intersection: 8: El Camino Real & Redwood Ave & Main St

Movement	NB	NB	NB	SB	SB
Directions Served	T	T	R	T	T
Maximum Queue (ft)	56	18	46	45	60
Average Queue (ft)	14	4	8	8	12
95th Queue (ft)	55	22	43	37	53
Link Distance (ft)	361	361	361	335	335
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Queuing and Blocking Report
PM Peak Hour Existing Conditions

9/12/2016

Intersection: 6: El Camino Real & Roosevelt Ave

Movement	EB	EB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	R	L	T	T	U	T	T	R
Maximum Queue (ft)	128	110	114	350	320	51	234	277	94
Average Queue (ft)	73	55	105	210	162	18	173	227	34
95th Queue (ft)	124	106	128	353	310	62	240	289	94
Link Distance (ft)	610			751	751		354	354	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)		150	90			60			70
Storage Blk Time (%)	1	0	37	3			30	33	0
Queuing Penalty (veh)	1	0	254	6			4	33	1

Intersection: 7: El Camino Real & Oak Ave

Movement	EB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LR	L	T	T	U	T	T	TR
Maximum Queue (ft)	173	197	168	130	44	226	279	125
Average Queue (ft)	110	136	69	56	16	114	129	88
95th Queue (ft)	179	201	152	132	46	213	255	147
Link Distance (ft)	387		335	335		751	751	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)		225			115			100
Storage Blk Time (%)		1	0			5	13	2
Queuing Penalty (veh)		3	0			1	77	9

Intersection: 8: El Camino Real & Redwood Ave & Main St

Movement	NB	NB	NB	SB	SB
Directions Served	T	T	R	T	T
Maximum Queue (ft)	138	143	92	53	73
Average Queue (ft)	28	27	26	10	16
95th Queue (ft)	150	155	87	49	67
Link Distance (ft)	460	460	460	335	335
Upstream Blk Time (%)		0			
Queuing Penalty (veh)		0			
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 9: El Camino Real & Hazel Ave/Laurel St

Movement	EB	WB	SB
Directions Served	R	R	TR
Maximum Queue (ft)	110	108	8
Average Queue (ft)	51	18	1
95th Queue (ft)	109	95	11
Link Distance (ft)	279	342	361
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: El Camino Real & Oakwood Dr/Dumbarton Ave

Movement	EB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	LTR	L	T	T	TR	L	T	T	TR
Maximum Queue (ft)	218	228	159	236	186	136	129	220	259	770
Average Queue (ft)	132	148	87	159	140	82	65	151	185	354
95th Queue (ft)	221	228	178	239	208	145	138	241	271	1342
Link Distance (ft)	470	526						2711	2711	2711
Upstream Blk Time (%)										0
Queuing Penalty (veh)										0
Storage Bay Dist (ft)			210				190			
Storage Blk Time (%)			1	1				3		
Queuing Penalty (veh)			3	1				2		

Zone Summary

Zone wide Queuing Penalty: 1808

Intersection: 9: El Camino Real & Hazel Ave/Laurel St

Movement	EB	WB	NB	NB	NB	SB
Directions Served	R	R	T	T	TR	T
Maximum Queue (ft)	116	125	7	8	14	2
Average Queue (ft)	55	42	1	0	2	0
95th Queue (ft)	111	147	10	0	15	4
Link Distance (ft)	280	340	2610	2610	2610	460
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 10: El Camino Real & Oakwood Dr/Dumbarton Ave

Movement	EB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	LTR	L	T	T	TR	L	T	T	TR
Maximum Queue (ft)	122	149	234	384	312	235	175	138	162	180
Average Queue (ft)	77	90	124	244	223	149	106	82	103	120
95th Queue (ft)	143	160	242	381	318	245	176	151	167	182
Link Distance (ft)	470	526						2610	2610	2610
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)			210				190			
Storage Blk Time (%)				10			1			
Queuing Penalty (veh)				14			5			

Zone Summary

Zone wide Queuing Penalty: 1812

Appendix F: Parking Survey and Utilization

Redwood City - El Camino Real Weekday Parking Survey
Date: June 2016

El Camino Real Block	Location	Northern Limit	Southern Limit	Number of Spaces		Number of Occupied Spaces								Current Parking Regulations & Price		Parking Utilization	
						11:00 AM		11:30 AM		12 noon		AVERAGE				AVERAGE	
				East side	West side	East side	West side	East side	West side	East side	West side	East Side	West Side	East Side	West Side	East Side	West Side
A	El Camino Real	Northern City Limit	Finger Avenue	29	6	18	0	18	0	19	0	18	0	2hr [5-2]/1hr [2-5]	2hr [5-2]/1hr [2-5]	62%	0%
B	El Camino Real	Finger Avenue	Avondale Avenue		3		0		0		0		0	2hr [5-2]/1hr [2-5]	2hr [5-2]/1hr [2-5], Red Curb		0%
C	El Camino Real	Avondale Avenue	Edgewood Road											2hr [5-2]/1hr [2-5]	Red Curb		
D	El Camino Real	Edgewood Road	Claremont Avenue		14		11		13		12		12	2hr [5-2]/1hr [2-5]	20 min, unmarked		79%
E	El Camino Real	Claremont Avenue	Whipple Avenue											Red Curb	Red Curb		
F	El Camino Real	Whipple Avenue	Hopkins Avenue	6	13	0	9	0	10	0	9	0	9	2hr [5-2]/1hr [2-5]	20 min, 2hr [5-2]/1hr[2-5]	0%	69%
G	El Camino Real	Hopkins Avenue	Brewster Avenue	21	16	11	14	9	15	10	16	10	15	20 min	20 min, 2hr [5-2]/1hr[2-5]	52%	88%
H	El Camino Real	Brewster Avenue	Broadway	9	2	7	1	9	1	11	2	9	1	marked with no time limit	2 hr [9-6], Red Curb	78%	50%
I	El Camino Real	Broadway	Winklebeck Street		26		22		22		22		22	Red Curb	unmarked		85%
J	El Camino Real	Winklebeck Street	James Avenue	7		4		3		3		3		marked meter spots	unmarked	57%	
K	El Camino Real	James Avenue	Harrison Avenue		17		13		11		12		12	Red Curb	5 min, 2hr [5-2]/1hr [2-5]		76%
L	El Camino Real	Harrison Avenue	Jefferson Avenue											Red Curb	Red Curb		
M	El Camino Real	Jefferson Avenue	Wilson Street		2		0		0		0		0	Red Curb	20 min		0%
N	El Camino Real	Wilson Street	Jackson Avenue											construction	Red Curb		
O	El Camino Real	Jackson Avenue	Diller Street		6		3		3		3		3	construction	2hr [5-2]/1hr [2-5]		50%
P	El Camino Real	Diller Street	Madison Avenue	15		12		12		14		13		Red Curb	2hr [5-2]/1hr [2-5]	80%	
Q	El Camino Real	Madison Avenue	Vera Avenue		14		12		14		13		13	marked, 2hr[5-2]/1hr [2-5]	20 min, 2hr [5-2]/1hr[2-5]		86%
R	El Camino Real	Vera Avenue	Maple Street		2		2		2		2		2	marked, 2hr[5-2]/1hr [2-5]	10 min, 2hr [5-2]/1hr[2-5]		100%
S	El Camino Real	Maple Street	Beech Street		9		6		9		7		7	Red Curb	2hr [5-2]/1hr [2-5]		67%
T	El Camino Real	Beech Street	Lincoln Avenue	9		9		8		8		8		Red Curb	Red Curb	100%	
U	El Camino Real	Lincoln Avenue	Cedar Street		6		6		7		4		6	Unmarked	2hr [5-2]/1hr [2-5], Red Curb		100%
V	El Camino Real	Cedar Street	Roosevelt Avenue											Red Curb	Red Curb		
W	El Camino Real	Roosevelt Avenue	Lathrop Street/Pine Street		17		17		14		7		13	Red Curb	20 min, 2hr [5-2]/1hr [2-5], yellow curb		100%
X	El Camino Real	Lathrop Street/Pine Street	Oak Avenue											Red Curb	Red Curb		
Y	El Camino Real	Oak Avenue	Redwood Avenue											Red Curb	Red Curb		
Z	El Camino Real	Redwood Avenue	Hazel Avenue/Willow Street											Red Curb	Red Curb		
AA	El Camino Real	Hazel Avenue/Willow Street	Hemlock Avenue											Red Curb	Red Curb		
AB	El Camino Real	Hemlock Avenue	Charter Street											Red Curb	Red Curb		
AC	El Camino Real	Charter Street	Center Street		5		1		1		2		1	Red Curb	unmarked		20%
AD	El Camino Real	Center Street	Northumberland Avenue		20		9		6		10		8	Red Curb	20 min, unmarked		45%
AE	El Camino Real	Northumberland Avenue	Nottingham Avenue	2		0		1		0				unmarked	marked	0%	
AF	El Camino Real	Nottingham Avenue	Carlos Avenue	11		10		11		10				unmarked	unmarked	91%	
AG	El Camino Real	Carlos Avenue	Buckingham Avenue											unmarked	Red Curb		
AH	El Camino Real	Buckingham Avenue	Dumbarton Avenue	17		0		0		0				2hr	Red Curb	0%	
AI	El Camino Real	Dumbarton Avenue	Berkshire Avenue	11		7		6		8				20 min, unmarked	No Sidewalk	64%	
AJ	El Camino Real	Berkshire Avenue	Selby Lane	13				1		0				unmarked	No Sidewalk		
AK	El Camino Real	Selby Lane	Columbia Avenue	11				4		5				unmarked	No Sidewalk		
AL	El Camino Real	Columbia Avenue	Fifth Avenue	4				0		0				unmarked	No Sidewalk		
AM	El Camino Real	Fifth Avenue	Amherst Avenu	7				0		0				unmarked	No Sidewalk		
AN	El Camino Real	Amherst Avenue	Loyola Avenue	5				0		1				1 hr	No Sidewalk		
AO	El Camino Real	Loyola Avenue	Wilburn Avenue	9				3		2				unmarked	No Sidewalk		
			El Camino Real Total	**96**	**178**	***61***	***126***	***59***	***128***	***65***	***121***	***62***	***125***			**65%**	**70%**

Cross Street Parking

WEST SIDE			Number of Spaces		Parking Utilization		Parking Regulations	
	North Side	South Side	North	South	North	South	North	South
Finger Avenue	1	4	14	11	7%	36%	unmarked	unmarked
Avondale	2	6	8	11	25%	55%	1 handicap, NR	NR
Edgewood	11	11	12	11	92%	100%	2hr [9-6pm]	2hr [9-6pm]
Claremont	13	12	14	13	93%	92%	NR	NR
Hopkins	1	7	5	8	20%	88%	2 hr [9-6], 30 min [7-6]	2hr [9-6pm]
Brewster	0	0		4		0%	Red Curb	Yellow Curb
Broadway	9	8	9	12	100%	67%	metered	metered
Harrison	12	12	13	12	92%	100%	2 hr [9-11am]	NR
Jackson	11	11	12	11	92%	100%	NR	NR
Madison	11	12	12	12	92%	100%	2hr [9-6pm]	NR
Vera	9	9	13	11	69%	82%	NR	NR
Lincoln	9	13	11	13	82%	100%	NR	NR
Roosevelt	6	7	6	7	100%	100%	1st half red curb, NR	2nd half red curb, NR
Oak	6	7	6	7	100%	100%	NR	NR
Redwood	5	0	6		83%		NR	NR
Hemlock	7	9	7	10	100%	90%	NR	NR
Center	0	4		4		100%	Red Curb	NR
Carlos	7	8	15	18	47%	44%	NR	NR
Oakwood	5		10		50%		NR	NR
Renato	23	22	23	22	100%	100%	NR	NR

EAST SIDE			Number of Spaces		Parking Utilization		Parking Regulations	
	North Side	South Side	North	South	North	South	North	South
Brewster Avenue	0	2	1	2	0%	100%	White Curb, Red Curb	metered, Red Curb
Broadway	12	20	13	20	92%	100%	metered [10-6]	metered [10-6]
Winklebeck Street	2	3	6	6	33%	50%	20 min, metered	metered
Wilson Street	10	4	11	8	91%	50%	NR	2hr [9-6pm]
Diller Street	7	9	7	9	100%	100%	NR	NR
Beech Street	10	9	10	9	100%	100%	NR	NR
Cedar Street	6	5	6	5	100%	100%	NR	2hr [9-6pm]
Lathrop Street	5	3	5	4	100%	75%	NR	36 min [9-6]
Pine Street	0	8	5	8	0%	100%	NR	NR
Main Street	4	15	9	15	44%	100%	NR	NR
Manzanita Street	10	2	11	8	91%	25%	NR	NR
Laurel Street	1	0	2	1	50%	0%	Red Curb, NR	Red Curb, NR
Willow Street	16	13	16	13	100%	100%	NR	NR
Charter Street	8	12	13	15	62%	80%	Red Curb, NR	NR

AVERAGE	EAST	WEST
	82%	79%

Appendix G: Collision Rate Calculations

Intersection Collision Rate Calculations

El Camino Corridor Plan

Intersection # 1: El Camino Real & Whipple Avenue

Date of Count: Thursday, May 26, 2016

Number of Collisions: 44
Number of Injuries: 12
Number of Fatalities: 0
ADT: 45900
Start Date: June 1, 2011
End Date: May 31, 2016
Number of Years: 5

Intersection Type: Four-Legged
Control Type: Signals
Area: Suburban

$$\text{collision rate} = \frac{\text{Number of Collisions} \times 1 \text{ Million}}{\text{ADT} \times 365 \text{ Days per Year} \times \text{Number of Years}}$$

$$\text{collision rate} = \frac{44 \times 1{,}000{,}000}{45{,}900 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.53 c/mve**	**0.0%**	**27.3%**
Statewide Average*	**0.43 c/mve**	**0.4%**	**37.9%**

ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2012 Collision Data on California State Highways, Caltrans

Intersection # 2: El Camino Real & Brewster Avenue

Date of Count: Thursday, May 26, 2016

Number of Collisions: 38
Number of Injuries: 14
Number of Fatalities: 0
ADT: 36000
Start Date: June 1, 2011
End Date: May 31, 2016
Number of Years: 5

Intersection Type: Four-Legged
Control Type: Signals
Area: Suburban

$$\text{collision rate} = \frac{\text{Number of Collisions} \times 1 \text{ Million}}{\text{ADT} \times 365 \text{ Days per Year} \times \text{Number of Years}}$$

$$\text{collision rate} = \frac{38 \times 1{,}000{,}000}{36{,}000 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.58 c/mve**	**0.0%**	**36.8%**
Statewide Average*	**0.43 c/mve**	**0.4%**	**37.9%**

ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2012 Collision Data on California State Highways, Caltrans

Intersection Collision Rate Calculaions

El Camino Corridor Plan

Intersection # 3: El Camino Real & James Street

Date of Count: Thursday, May 26, 2016

Number of Collisions: 16
Number of Injuries: 4
Number of Fatalities: 0
ADT: 34300
Start Date: June 1, 2011
End Date: May 31, 2016
Number of Years: 5

Intersection Type: Four-Legged
Control Type: Signals
Area: Suburban

$$\text{collision rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x 365 Days per Year x Number of Years}}$$

$$\text{collision rate} = \frac{16 \times 1{,}000{,}000}{34{,}300 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.26 c/mve**	**0.0%**	**25.0%**
Statewide Average*	**0.43 c/mve**	**0.4%**	**37.9%**

ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2012 Collision Data on California State Highways, Caltrans

Intersection # 4: El Camino Real & Jefferson Avenue

Date of Count: Tuesday, March 22, 2016

Number of Collisions: 47
Number of Injuries: 20
Number of Fatalities: 0
ADT: 44800
Start Date: June 1, 2011
End Date: May 31, 2016
Number of Years: 5

Intersection Type: Four-Legged
Control Type: Signals
Area: Suburban

$$\text{collision rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x 365 Days per Year x Number of Years}}$$

$$\text{collision rate} = \frac{47 \times 1{,}000{,}000}{44{,}800 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.57 c/mve**	**0.0%**	**42.6%**
Statewide Average*	**0.43 c/mve**	**0.4%**	**37.9%**

ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2012 Collision Data on California State Highways, Caltrans

Intersection Collision Rate Calculaions

El Camino Corridor Plan

Intersection # 5: El Camino Real & Maple Street

Date of Count: Tuesday, January 27, 2015

Number of Collisions: 11
Number of Injuries: 6
Number of Fatalities: 0
ADT: 31100
Start Date: June 1, 2011
End Date: May 31, 2016
Number of Years: 5

Intersection Type: Tee
Control Type: Signals
Area: Suburban

$$\text{collision rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x 365 Days per Year x Number of Years}}$$

$$\text{collision rate} = \frac{11 \times 1{,}000{,}000}{31{,}100 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.19 c/mve**	**0.0%**	**54.5%**
Statewide Average*	**0.27 c/mve**	**0.6%**	**37.3%**

ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2012 Collision Data on California State Highways, Caltrans

Intersection # 6: El Camino Real & Roosevelt Avenue

Date of Count: Tuesday, February 24, 2015

Number of Collisions: 20
Number of Injuries: 7
Number of Fatalities: 0
ADT: 32300
Start Date: June 1, 2011
End Date: May 31, 2016
Number of Years: 5

Intersection Type: Tee
Control Type: Signals
Area: Suburban

$$\text{collision rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x 365 Days per Year x Number of Years}}$$

$$\text{collision rate} = \frac{20 \times 1{,}000{,}000}{32{,}300 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.34 c/mve**	**0.0%**	**35.0%**
Statewide Average*	**0.27 c/mve**	**0.6%**	**37.3%**

ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2012 Collision Data on California State Highways, Caltrans

Intersection Collision Rate Calculaions

El Camino Corridor Plan

Intersection # 7: El Camino Real & Oak Avenue

Date of Count: Thursday, May 26, 2016

Number of Collisions: 29
Number of Injuries: 11
Number of Fatalities: 0
ADT: 50500
Start Date: June 1, 2011
End Date: May 31, 2016
Number of Years: 5

Intersection Type: Tee
Control Type: Signals
Area: Suburban

$$\text{collision rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x 365 Days per Year x Number of Years}}$$

$$\text{collision rate} = \frac{29 \times 1{,}000{,}000}{50{,}500 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.31 c/mve**	**0.0%**	**37.9%**
Statewide Average*	**0.27 c/mve**	**0.6%**	**37.3%**

ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2012 Collision Data on California State Highways, Caltrans

Intersection # 8: El Camino Real & Redwood Avenue/Main Street

Date of Count: Thursday, May 26, 2016

Number of Collisions: 7
Number of Injuries: 2
Number of Fatalities: 0
ADT: 54800
Start Date: June 1, 2011
End Date: May 31, 2016
Number of Years: 5

Intersection Type: Four-Legged
Control Type: Stop & Yield Controls
Area: Suburban

$$\text{collision rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x 365 Days per Year x Number of Years}}$$

$$\text{collision rate} = \frac{7 \times 1{,}000{,}000}{54{,}800 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.07 c/mve**	**0.0%**	**28.6%**
Statewide Average*	**0.26 c/mve**	**0.9%**	**37.4%**

ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2012 Collision Data on California State Highways, Caltrans

Intersection Collision Rate Calculaions

El Camino Corridor Plan

Intersection # 9: El Camino Real & Laurel Street/Hazel Avenue

Date of Count: Thursday, May 26, 2016

Number of Collisions: 18
Number of Injuries: 2
Number of Fatalities: 0
ADT: 21900
Start Date: June 1, 2011
End Date: May 31, 2016
Number of Years: 5

Intersection Type: Four-Legged
Control Type: Stop & Yield Controls
Area: Suburban

$$\text{collision rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x 365 Days per Year x Number of Years}}$$

$$\text{collision rate} = \frac{18 \times 1{,}000{,}000}{21{,}900 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.45 c/mve**	**0.0%**	**11.1%**
Statewide Average*	**0.26 c/mve**	**0.9%**	**37.4%**

ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2012 Collision Data on California State Highways, Caltrans

Intersection # 10: El Camino Real & Dumbarton Avenue/Oakwood Drive

Date of Count: Thursday, May 26, 2016

Number of Collisions: 14
Number of Injuries: 3
Number of Fatalities: 0
ADT: 41200
Start Date: June 1, 2011
End Date: May 31, 2016
Number of Years: 5

Intersection Type: Four-Legged
Control Type: Signals
Area: Suburban

$$\text{collision rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x 365 Days per Year x Number of Years}}$$

$$\text{collision rate} = \frac{14 \times 1{,}000{,}000}{41{,}200 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.19 c/mve**	**0.0%**	**21.4%**
Statewide Average*	**0.43 c/mve**	**0.4%**	**37.9%**

ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2012 Collision Data on California State Highways, Caltrans